NOV. 6 1959

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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Price 50 Cents

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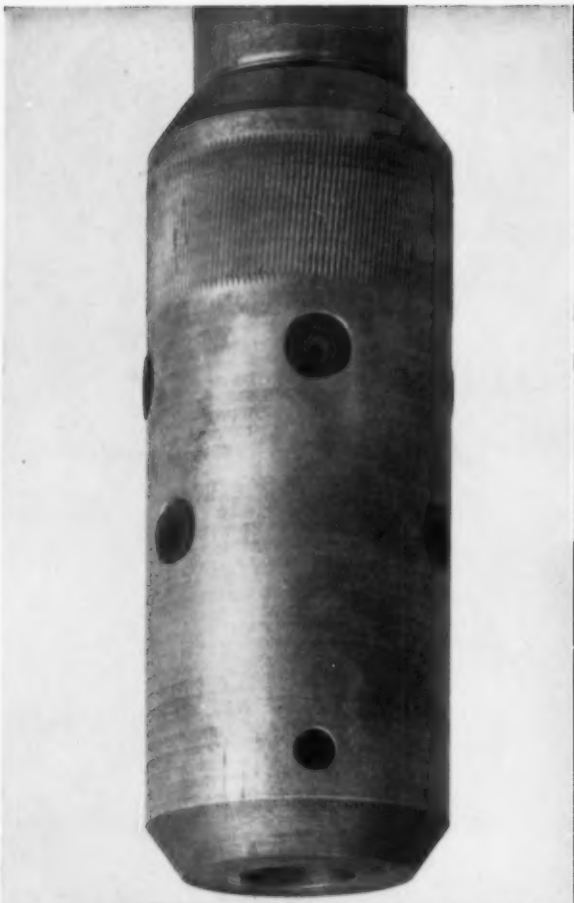

Here is the single-stage tool used in Abrasijet. The special-alloy jet-nozzles may be used in combinations of from two to seven jets. There is also a multi-stage tool with jets in three horizontal planes. Sliding sleeves permit the opening of the jets in each plane as needed.

Four open jets are shown in this demonstration. Abrasive-laden fluid, blasting through these nozzles, can enlarge open holes, remove insoluble deposits, cut slots in formations, and perforate casing without explosives.

This photograph shows a 12-inch long limestone block that has been penetrated with Abrasijet. Notice the large diameter and smoothness of the hole which was made in less than eight minutes. In the same test, J-55 casing was perforated in 23 seconds.

DOWELL ANNOUNCES ABRASIJET

—a new service developed to do things that "couldn't be done"

These photographs show the tool used in Abrasijet*, Dowell's *fast* new abrasive jetting service; and the way it works to solve oil and gas well problems that have been extremely difficult or impossible in the past.

Abrasive-laden water, oil or acid is pumped through jet nozzles against the pipe or formation. Sand, flint or steel pellets may be used as the abrasive.

Abrasijet is used to remove scale from formation faces or casing. It is used to perforate casing. It is also used to enlarge open holes, and to create slots to reduce formation breakdown pressures in acidizing or fracturing treatments.

When Abrasijet is used ahead of stimulation services, the casing can be perforated on the same set-up—without the expense of calling a special perforating unit. The stimulation treatment can usually proceed without the need of removing the tool from the well.

Since the action is primarily mechanical, Abrasijet removes deposits that resist acid. Because no explosives are used, there is no danger of shattering cement or splitting pipe.

Although Abrasijet was first used to clean up old water injection wells, operators are finding new uses for the service every day.

For detailed information on Abrasijet or prompt service, call the Dowell office nearest you. There are more than 165 service points in the United States, Canada, Venezuela and Argentina. Dowell, Tulsa 1, Oklahoma.

*DOWELL SERVICE MARK

Services for the oil industry — DOWELL

DIVISION OF THE DOW CHEMICAL COMPANY

Meet Ethyl's Idan Flaa

The name, you say, is certainly unusual. And we say, so is the man.

Idan Flaa is an Ethyl Account Representative in the Tulsa area, meaning he's one of our key contacts with Ethyl customers. His responsibility is to pull *all* of Ethyl's services together for the specific benefit of his customer accounts—and that's quite a job.

To do it, he has to know both his customer's needs and Ethyl's services—*well*. The job calls for a pro—and that's Idan.

Flaa's Ethyl experience covers 22 years—with time out in Army Ordnance. He started as a mechanical engineer, but over the years Idan has done everything for us from managing a motor clinic to representing Ethyl as a Chief Automotive Engineer. He knows sales, he knows research and service.

Idan Flaa is also known to a lot of people in the Oil Industry as an OIIC Gold Award winner in 1956 and 1957, as a past chairman of the Petroleum Industry Department of the Tulsa Chamber of Commerce, and a past treasurer of the Mid-Continent Section of SAE.

We might add that Idan Flaa is *typical* of Ethyl Account Representatives . . . the kind of man you deal with when you deal with Ethyl.

1. Keeping customer management well-informed about Ethyl's many services and activities is a major part of Idan's job. On this visit, he shows a customer executive highlights of a brochure on Ethyl's "Magic Circle" market expansion program.

2. To help customers with dealer training, Idan offers his own services, those of Ethyl's automotive specialists, and the Ethyl Automotive Training Kit. His chalk-talk at this session was on the efficiency of today's fuels.

3. Whenever an Ethyl specialist can be of service, Idan follows through. Here, he arranged to have an Ethyl Product Service engineer consult with a customer's safety chief.

4. Loaning an Ethyl-instrumented car to a customer, Idan explains how the Ethyl-designed spark advance quadrant lets the customer do precise road testing of his own fuel blends.

Ethyl's Account Representatives are charged with one responsibility: To personify Ethyl's belief that service is just as important as product.

ETHYL ANTIKNOCK COMPOUND — ETHYL CORPORATION

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Humble produces a complete line of paints and protective coatings. For offshore installations, there's a Humble protective coating for every surface from the splash-zone to the crown block, including the working platform and structures of metal or wood on the platform.

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INSIDE *Slant*

STEP IN RIGHT DIRECTION

The IPAA Efficient Recovery Committee has turned to colleges and universities in its efforts to reduce rising exploration, development, and production costs.

The committee is seeking aid from the schools to encourage the devotion of the time, thought, and energy of students toward a solution of the cost problems.

In fact, the committee already has had enthusiastic response from geological and petroleum engineering departments on the possibilities of concentrated research in the cost-reducing field.

But, as the committee points out, there is the need for financial encouragement to graduate students. This could be in the form of scholarships and grants.

Endowments to the schools should carry guide posts for channeling such funds into the geological and engineering departments, with specific limitations that these funds be used for research in such projects as are assigned by IPAA.

Of course, any such program must be considered long-range.

But it is a step in the right direction; one that must be initiated and nurtured before any harvest can be reaped.

LeRoy Menzing
EDITOR

engine power
BY CATERPILLAR

In oil field work, lugging ability is extra important and Cat Diesels have the torque rise to give it to you!

Every oil man knows the importance of engine power that can handle sudden heavy loads efficiently and without stalling out. The torque rise built into Caterpillar Diesels can deal with any ordinary power challenge. High torque capacity pays for itself when pulling pipe. Cat Engines respond by developing more *turning* force for steady power application as engine speeds drop.

In Cat power plants, torque rise characteristics are an important part of engine design. Torque rise for best lugging ability is a function of engine breathing. It depends on fuel injection and metering, too. In addition, Cat power packages provide an exclusive torque spring for greater efficiency. This device makes it possible to provide maximum engine torque at any *predetermined* engine speed. By using springs with varying tensions, you can change the RPM at which maximum torque will occur, and custom-fit your Cat Engine to any specific application!

Engine Division, Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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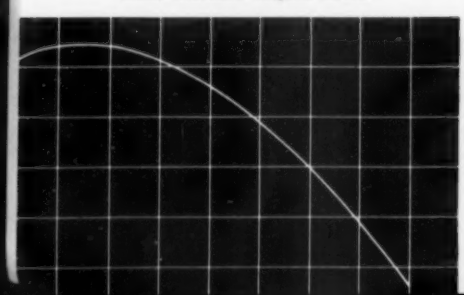
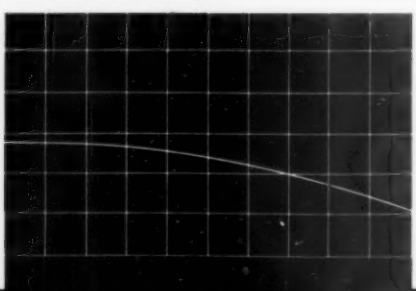
What is lugging ability or torque rise? When the throttle of an engine with no load is wide open, the engine runs at high idle. As load increases, the engine slows, *providing the torque—or turning force—necessary to match the load.* An engine operates at "lug" when load requirements momentarily demand more torque than that available at rated speed. Good lugging ability is represented by rapidly-increasing torque characteristics over a wide speed range as RPM drops.

Cat's exclusive torque spring provides *additional* fuel delivery to the cylinders under lug conditions—materially increasing engine torque at reduced engine speed.

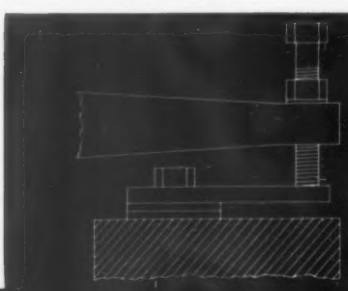
Cat Engines have high torque rise **as indicated here. Horizontal lines show torque measured in lb.-ft. Vertical lines indicate engine RPM.**



Most competitive engines **have comparatively less torque rise, which means inadequate lugging ability. This can be costly on the job.**



Torque spring. **This is the Cat exclusive which permits you to select the engine speed at which you desire your maximum engine torque.**



Another example of PROCON

CREATIVE CONSTRUCTION

This new 800 T/D Platformer built for Deutsche Shell at Hamburg-Harburg, Germany, is typical of the many petroleum, petrochemical and chemical processing units for which Procon has been selected to handle construction.

Whether your plans call for additional process facilities or an entire new plant, Procon's world-wide organization can provide complete service from blueprint to finished job. Handled by Procon, your new facility will be built to perform efficiently, economically . . . and as intended.

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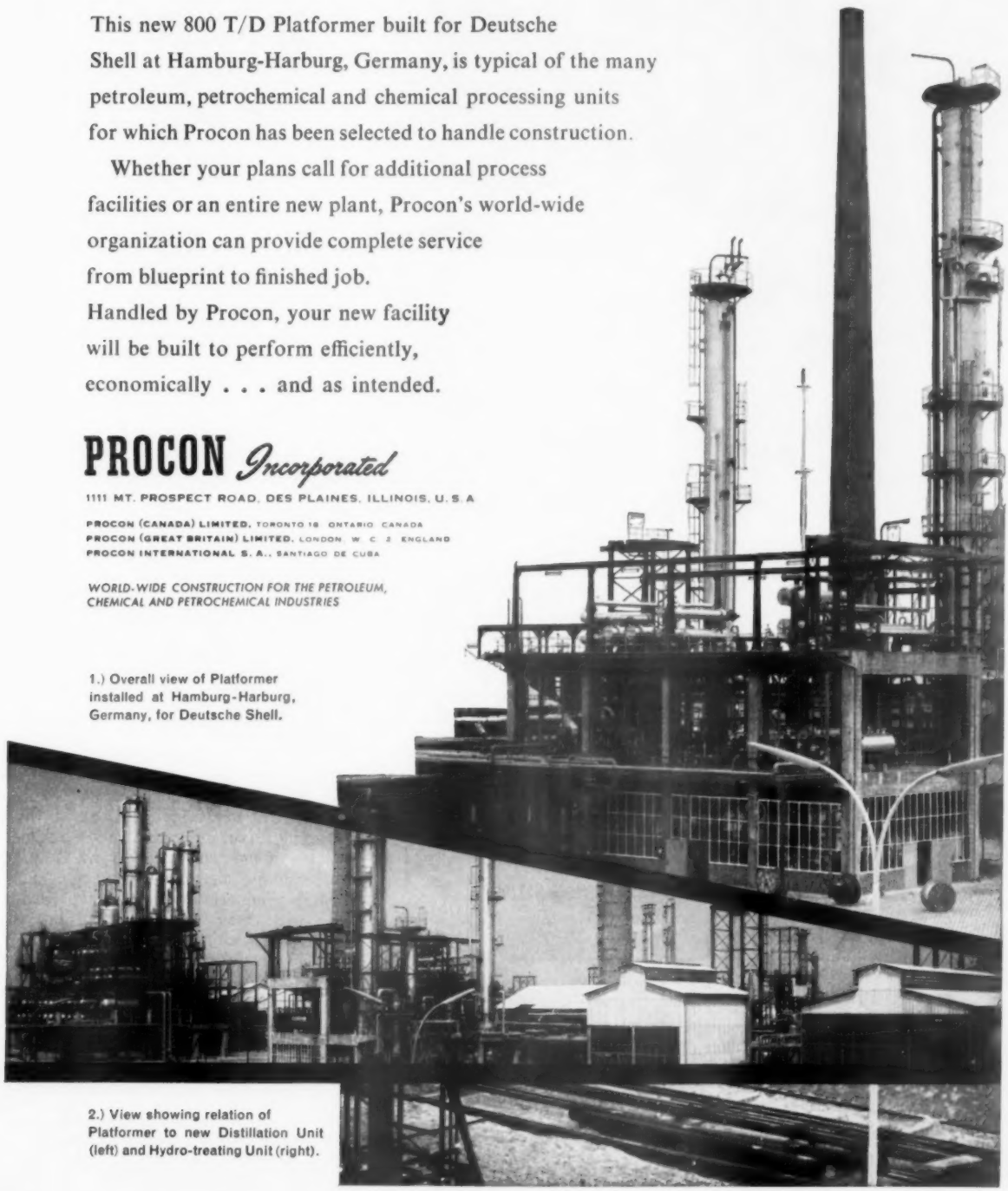

1.) Overall view of Platformer installed at Hamburg-Harburg, Germany, for Deutsche Shell.

2.) View showing relation of Platformer to new Distillation Unit (left) and Hydro-treating Unit (right).

Congrats and $25 for this quip to G. A. KRAFT, 17 Van Berwaerdeweg, The Hague, Netherlands

To the men on the rig and the men at headquarters . . . Lone Star casing, tubing, and line pipe mean fine steel stamina and the convenience of quick supply so important in the oil and gas industry.

Quality control is basic at Lone Star . . . from ore to finished products. Ultra modern manufacturing facilities plus multiple, exacting inspections guarantee absolute satisfaction with Lone Star API Pipe.

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DEPT/Opinions

Views That

Dear Sir:

Your Inside Slant, "It Can Be Done" [PW—Oct.16'59,p3], is most effective.

I thought you might be interested in knowing that Charles Eckes, discoverer of Maracaibo, is still living and resides in Tulsa.

ALF. R. THOMPSON
Chairman
Public Information Committee
Independent Petroleum Assn. of America

Dear Sir:

Your article, "Private-Brand Marketers May Force Major Changes" [PW—Oct.2'59,p12], was very good and should be of interest and service to the industry.

J. B. MCNALLEN
Division of Marketing
American Petroleum Institute

Dear Sir:

Your story, "Perforations Are Built Into Casing" [PW—Oct.16'59,p26], has just been brought to my attention. Speaking for the National Petroleum Corp., of Alberta, Canada, I would like to make some observations . . .

I believe your representative in Tulsa did a very fine job in his article. However, total absence of comment on our expanding cement left the article incomplete. And there should have been no need of the column headed: "Although the permeator method has been proved mechanically sound by field tests, it is not without some disadvantages," especially insofar as the comments on "corrective cementing, etc." and "faulty jobs, etc." are concerned.

In this regard, our method of placing scratches every 2 ft. along the permeator region guarantees distribution of the cement there, and the expanding quality of the cement (about 8% volumetrically in 24 hours) guarantees there is no leakage, since a heavy caulking (pressure built-in job) between the casing and the formation closes that avenue from faulty bond. This should even pack-off against any remaining filter cake, if present—and we could not have a faulty cement job such as are so prevalent under the present system. We have never had one yet.

In regard to the statement that "no channel is created in the reservoir rock itself" (meaning bullet or jet channel), under the same listing of "disadvantages," please be advised that

Make News

this is an advantage. The bullet and/or jet gets some penetration (channel in rock) but always at the expense of compaction due to entry under great heat and pressure. In no respect can explosive perforating and penetration by pressure compaction be regarded as other than what it is—a force to punch a hole through steel and compact the formation by great pressure.

On the other hand, we slide a tube (later an open tube) up to the formation, contacting it, and then stimulate separately through each and every tube, which we can do because there is no cracking of the cement between these tubes (perforations if you like) in back of the casing. There is no possibility of doing this when blasting holes through the steel casing. In that our method allows such hole-to-hole treatment (and the holes are not connected by blasted or cracked cement in back of the casing), we have contributed a great advance to well mechanics allowing for great treating efficiency.

S. MYRON ZANDMER
President
National Petroleum Corp., Ltd.

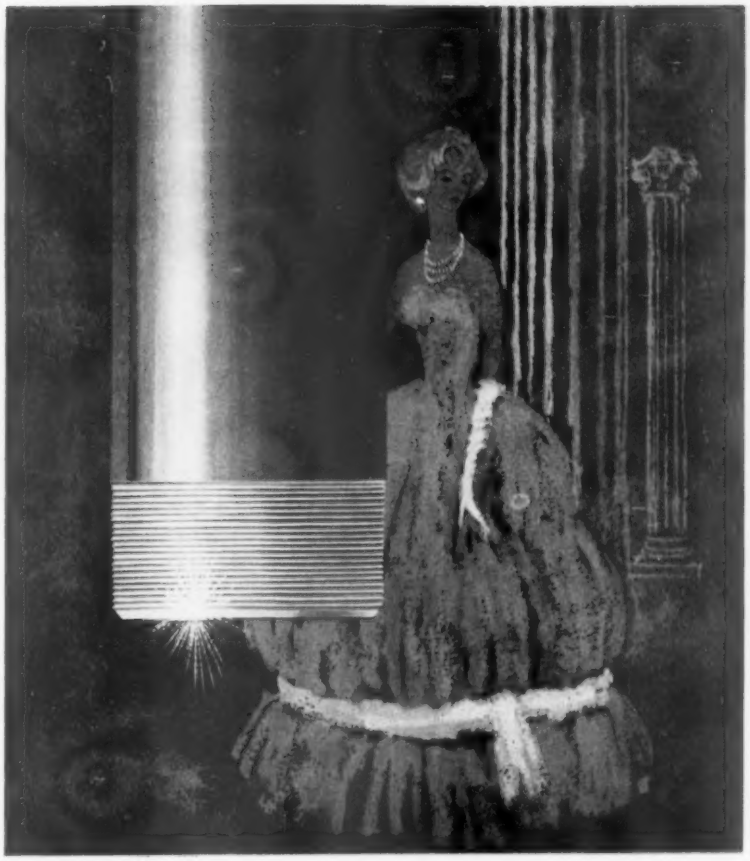
Dear Sir:

Congratulations on your splendid special report, "The Trend in Overseas Equipment: More Sales—and More Sellers" [PW—Sep.25'59,p42]. We noted with special interest the subject of lowering costs for export shipping.

As an export packer for the past 18 years, we feel we have helped lower ocean shipping costs. We do this by lowering the ocean freight charged by the steamship company. This is achieved by packing the maximum amount of cargo in the minimum space. Since ocean freight is charged mostly by the amount of space is occupies, reducing the shipment's cubic measurement automatically reduces the cost of the shipment. . .

FRANK HATZ
Foreign Trade Export Packing Co.
Houston, Tex.

PETROLEUM WEEK *will publish reader comments each week. Address letters to LeRoy Menzing, Editor,* PETROLEUM WEEK, *330 W. 42nd St., New York 36, N. Y.*



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Lone Star API casing, tubing and line pipe . . crafted by skilled hands and America's most modern steel tools and facilities . . is the pipe the oilman knows he can depend upon.

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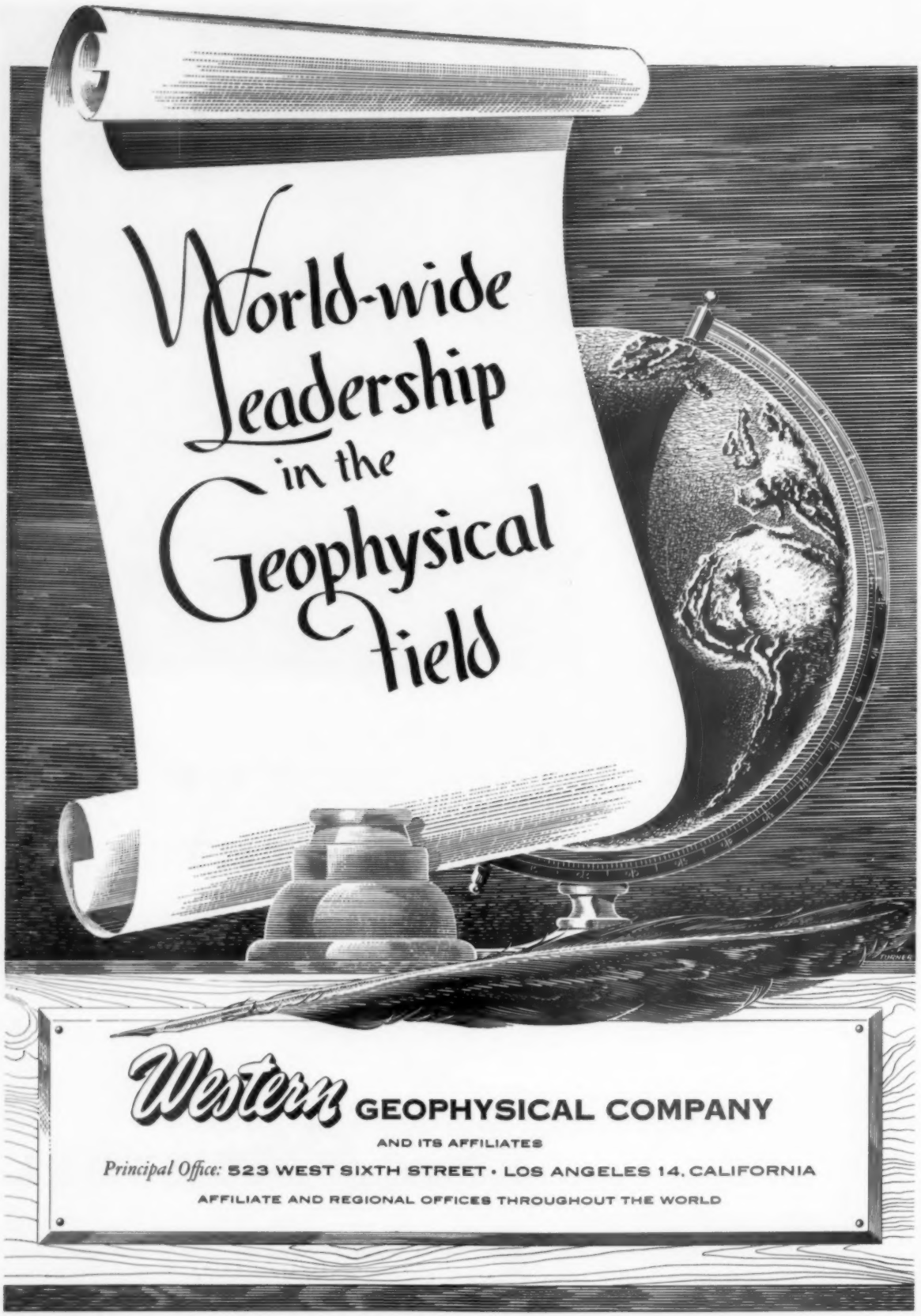
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SWEPTLINE pick-ups head their class in looks; lead in load space, power. 4-wheel-drive optional.

FORWARD-CONTROL chassis put famous Dodge dependability under the body of your choice.

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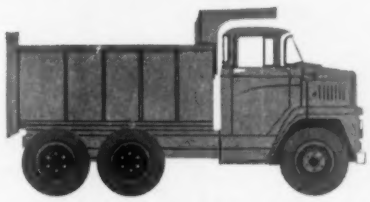
TRACTOR models with compact new 89¾" BBC pull longer trailers, bigger legal payloads.

STAKE bodies from 7½′ to 14′ are built by Dodge on models to 19,500 lbs. G.V.W.



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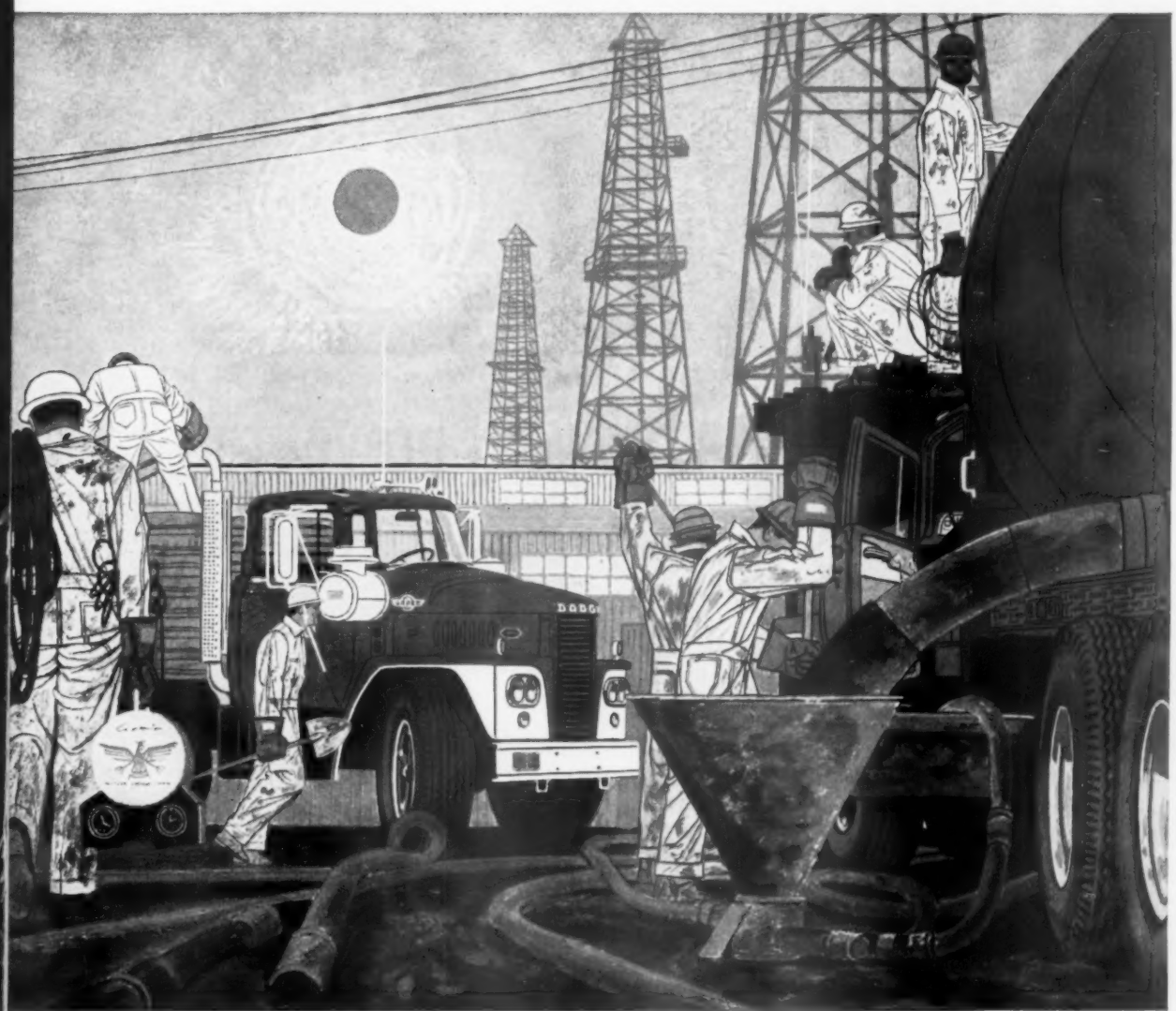

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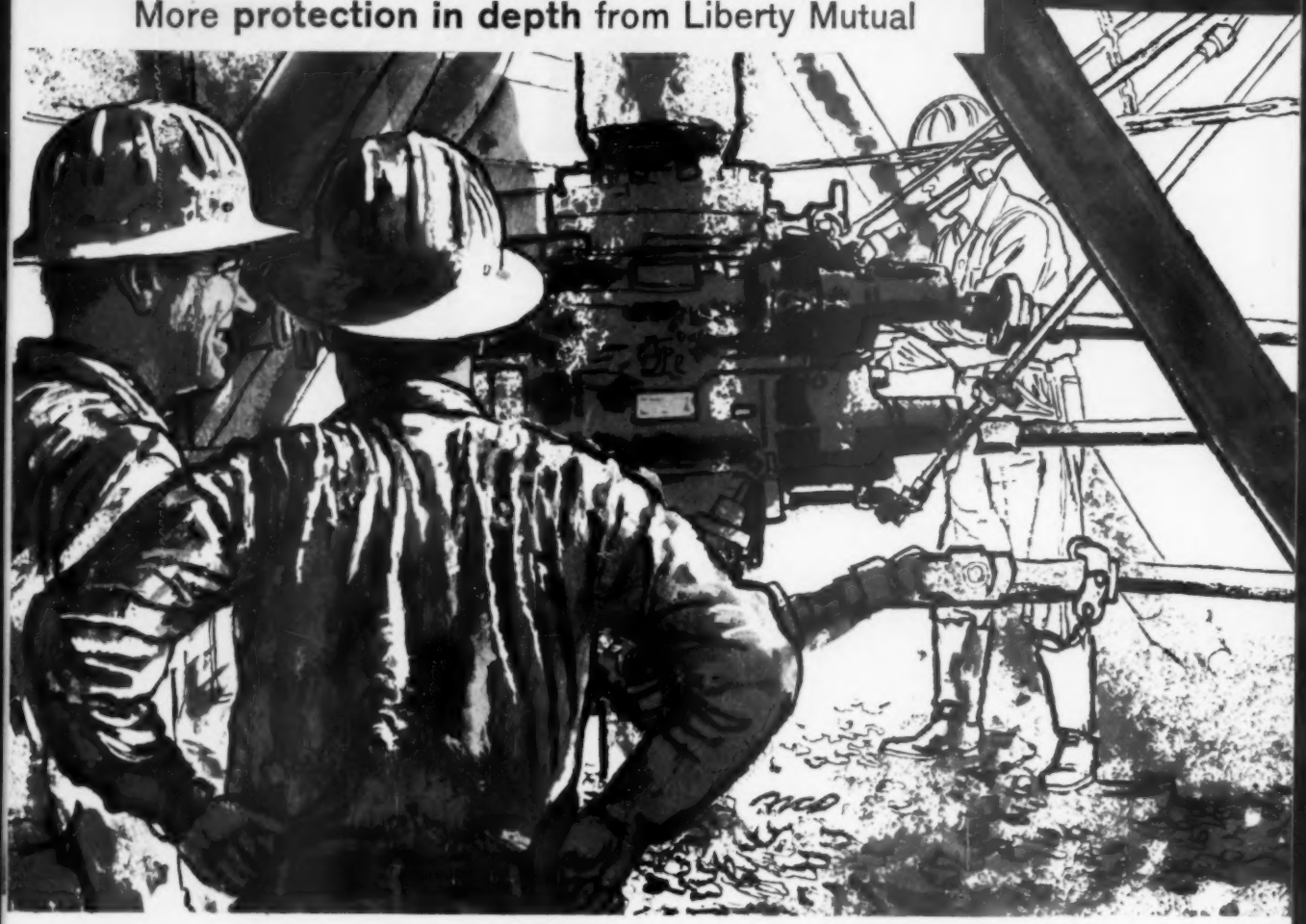

How to baby a blowout preventer and lower your compensation costs

Blowouts can spell disaster. You can lose your rig, the hole — even the lives of your men.

That's why Liberty Mutual engineers check your preventer, and prevention procedures, so carefully. Preventer equipment correctly installed and tested? Accumulators or pressure pumps functioning properly? Preventer assembly, choke and manifold lines tied down? Do your drilling crews know what to do in a fire or blowout emergency?

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report

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DON'T LET PARAFFIN "SNAKES" CHOKE OFF YOUR PRODUCTION

The best and most economical paraffin control program is a continuous program of prevention.

The snake-like mass of paraffin shown was removed from a Kansas well and is a typical indication of what happens when paraffin is allowed to accumulate. When paraffin accumulates to this extent, it chokes the well and must be removed by scraping, steaming or the application of powerful, costly (and often hazardous) chemical cleaning methods.

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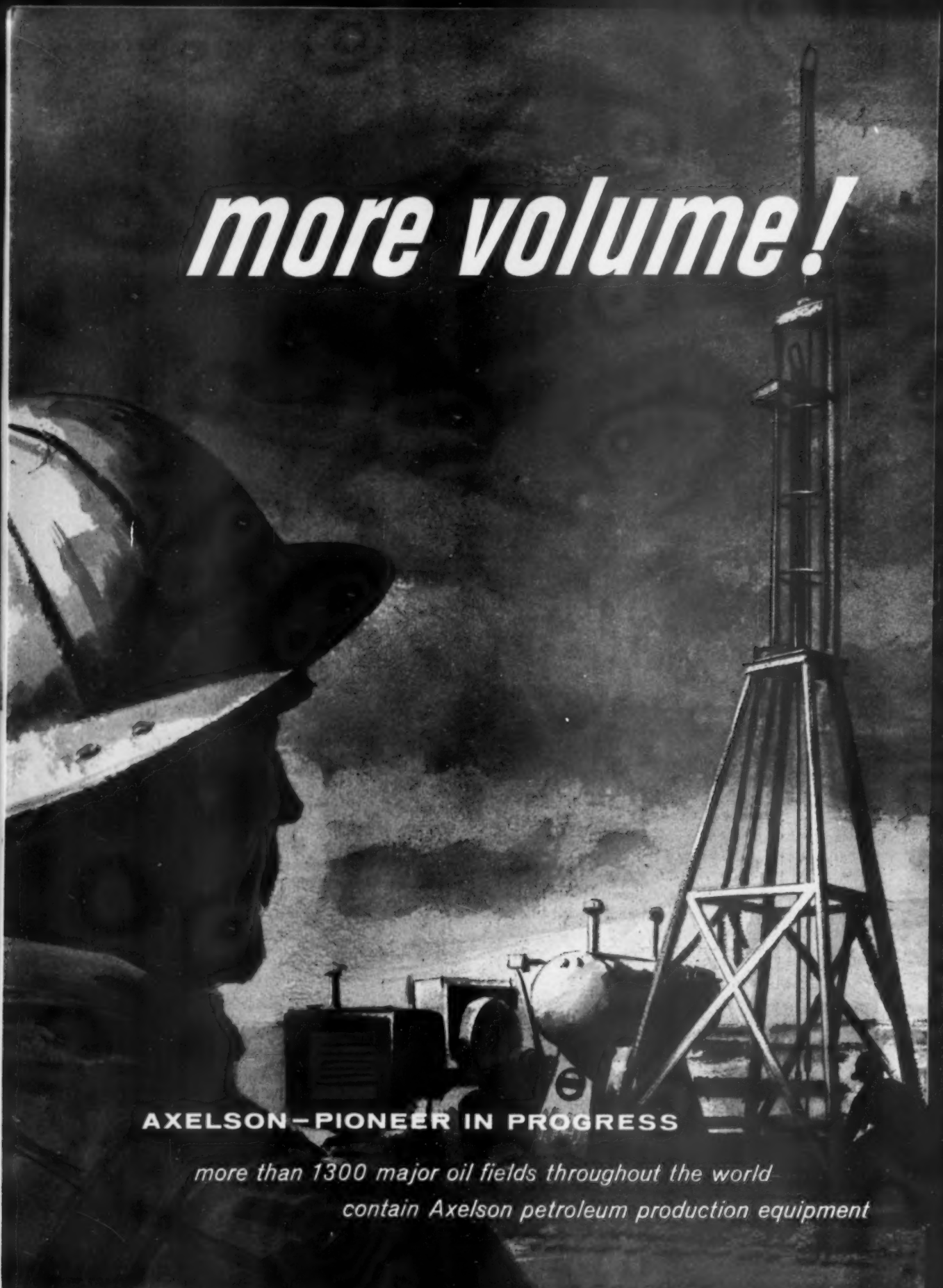
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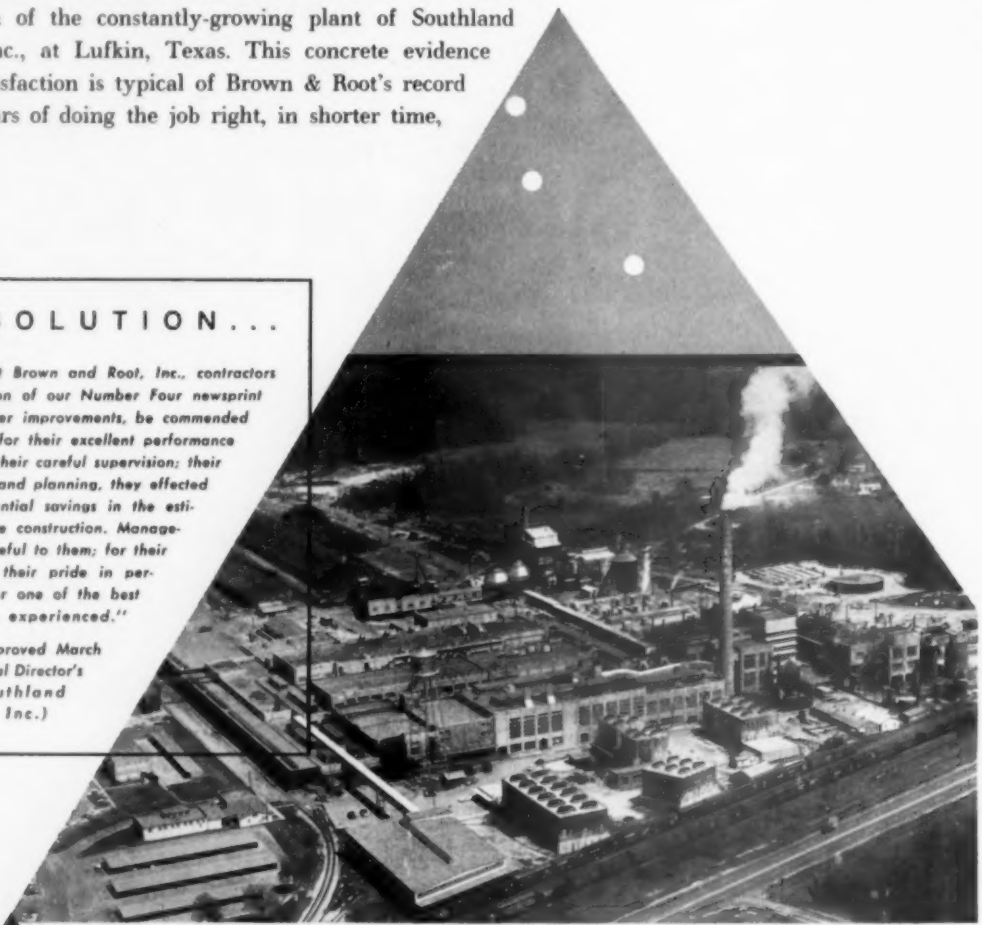
(Unanimously approved March 31, 1959 at annual Director's Meeting of Southland Paper Mills, Inc.)



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60-Second Summary / WHAT'S HAPPENING IN OIL

November 6, 1959

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The oil industry is paying a $25-million bill for surplus inventories. The "carrying costs" are cutting deeply into the savings made by improved efficiency in operations. . . . p. 23

•

Marketing is emerging as the key to survival in the oil industry. A Petroleum Week Special Report discusses marketing's new role, and the reasons behind it. . . . p. 56

•

Proposed secondary recovery projects in Texas will add more than 200-million bbl. to the state's crude reserves. They're mostly waterfloods, but they are equivalent to discovery of two major oil fields. . . . p. 35

•

The Missouri-Kansas-Texas R. R. reports success so far with plans to build a new products pipeline. The line would run from West Texas to the Upper Midwest. . . . p. 120

•

A "test-tube" highway may save millions in research expenditures. Indiana Standard constructed it at its Whiting refinery to check improvements in asphalt and paving formulas. It can simulate years of wear in a matter of days. . . . p. 90

•

A former Soviet geologist says U. S. and Canadian companies should coordinate exploration efforts in the Arctic. Separate work, he says, "will only be a waste of time and money." . . . p. 38

•

Canadian gas could be moving into Upper Midwest homes some time next year. The Federal Power Commission has approved Midwestern Gas Transmission Co.'s plan, and Canada is expected to do likewise by the end of this year. . . . p. 26

•

Newly developed electrical equipment could lead to the disappearance of the gasoline pump. It may presage major changes in station design. . . . p. 124

•

Buton resins will soon be put on the market in commercial quantities. They're used mainly for plastic laminates and surface coatings. . . . p. 90

•

A proposed oil law in Colombia is leaving oil men cold. They feel it would boost costs, thereby repelling newcomers and causing a slowdown in the high pace of activity. . . . p. 105

•

The Venezuelan government may offer a compromise plan to settle the month-long oil labor contract dispute. It may take over some of the social benefits now provided by oil companies. . . . p. 25

Up to the Minute / SIGNIFICANT LATE NEWS

AT-A-GLANCE PETROLEUM WEEK Copyright

November 6, 1959

FPC was ordered this week to approve an application by Transcontinental Gas Pipeline to transport "boiler fuel" gas. The Third Circuit Court of Appeals, in Philadelphia, set aside an FPC decision which rejected Transco's proposal to move up to 50-million cu. ft. of gas purchased by Consolidated Edison Co. from Texas producers to the utility in New York. The court directed FPC to "issue the certificate applied for," subject to further hearings on a minor rate question.

•

Heavy product inventories have prompted Pure Oil Co. to suspend operations at its Toledo (Ohio) refinery for approximately one month. Vice-president P. N. Gammelgard says the 38,400 b/d plant will be shut down from Nov. 15 through Dec. 13.

•

A new oil union was formed in Chicago this week. It represents some 3,000 Indiana Standard employees who refused to go along with the Central State Petroleum Union's recent merger with other groups to form the Independent Oil Workers Union (PW—Aug.28'59p11). Membership is limited to nonrefinery workers.

•

The "area price" system of regulating natural gas is getting increased attention from the Federal Power Commission. A public statement by Commissioner Frederick Stueck is regarded as a trial balloon for establishing field price ceilings by producing areas. Under the plan, new producer filings could take effect quickly if they did not violate the local price ceiling. If otherwise, the producer's case would be suspended pending proof of the need for a higher price.

Some observers think the field producing approach may be adopted by FPC before the year's end. Stueck reportedly has support among the other commissioners. And if field prices are adopted, any campaign for passage of a new natural gas bill could be slowed.

•

Cuban exploration rights held by two U.S.-backed independent companies were placed in jeopardy this week by the Castro government. The Agrarian Reform Institute seized 65,000 acres in Oriente Province, on which mineral concessions were owned by Cuban Development Co. and Cia. Phillips. The seizure came on the heels of another anti-oil action. Last Friday the government sealed the files of 45 companies holding exploration rights in Cuba, contending it needed them to help formulate petroleum legislation.

•

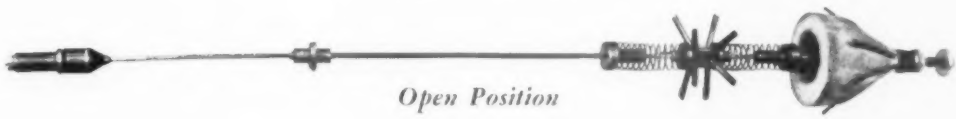
Indiana Standard's net earnings for the third quarter were down 19.6%, but consolidated earnings for the first nine months were up 22.8%. Weak prices and labor difficulties were cited for the third-quarter drop of $6.6-million. Nine-month total was $106,189,113, vs. $86,449,150 for 1958.

Another Through-Tubing Tool from Welex

Through-Tubing BRIDGE PLUG

Closed Position

Bridge Plug Case



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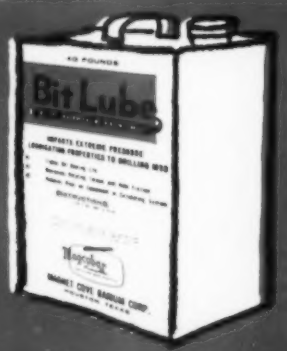

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PETROLEUM WEEK
November 6, 1959

Stock Mismanagement Hits Profits

The 'carrying charge' for excess product inventories amounts to about $25-million annually, a sizeable charge that cuts deeply into savings the industry is making by greater efficiency in operations. The solution is for each company to practice sound inventory management.

Mismanagement of inventories is eating into the savings that oil companies are making by cutting costs. It is the industry's No. 1 problem.

That's the opinion of petroleum economists in representative large and small companies interviewed last week by PETROLEUM WEEK.

In some cases, they report, the cost of carrying unnecessary surplus inventories of products—the result of excessive refinery runs—has more than offset savings that have been achieved through greater efficiency in production, refining, and transportation operations.

The economist of one integrated company describes the industry's over-all pattern of operations as like the dog in Aesop's Fables, who saw his reflection in the brook below and snapped greedily for what he thought was a second bone, thus losing the one he had.

"We reach greedily for the illusory profits on the incremental barrel of refinery throughput," he observes, "and thus lose the normal profits on all our sales. Aesop's dog went home a hungrier but wiser animal.

"Year after year, the oil industry goes home a little hungrier than it need be. But we seem to gain little wisdom from the experience."

The cost—or in fact the waste—of the present surplus product-inventory position amounts to about $25-million a year for the industry.

That's based on the amount by which current product stocks are in excess of what industry officials earlier this year said would be an "ample" position on Nov. 1.

On the basis of the average of the estimates supplied to the Texas Railroad Commission last March, present product stocks are 60-million bbl. above the ample level.

The inventory carrying charges alone—interest, loss from evaporation, and the need for extra tankage—range from 35¢ to 45¢ a bbl., according to several economists.

In addition to high carrying cost, surplus inventories exert downward pressure on prices—a condition that has hurt all companies during most of the past two years.

The results of third-quarter operations of oil companies point very strongly to the impact of low gasoline prices over most of the U.S. during the past summer.

Several companies had substantial declines in earnings in the third quarter, declines that they attributed to excessive inventory build-up (PW—Oct.30'59,p14). And additional earnings reports this week show a similar trend (page 26).

The accumulation of excess inventory hits the smallest units—both refiners and producers—the hardest. But over-all, declines in prices even by small fractions have an industry-wide repercussion.

The primary causes of inventory surpluses have remained unchanged over the past years: (1) the inability of the industry to use its available capacity wisely; and (2) the lure of a potential "big" profit from the incremental barrel.

The problem of how to handle excess capacity has plagued the industry as far back as the '20s. And while the passage of sound conservation laws in the late '30s stopped a considerable portion of the wasteful production, the surplus positions associated with the unwise use of refining capacity are still with the oil industry.

"It's all too easy," the economist for one large company remarks, "for the manufacturing department to keep runs high, hoping to improve the profit showing of his operation." The cost of the incremental barrel ranges from one-third to one-half the cost of all the barrels of refinery throughput, he explains.

"On paper," he notes, "the incremental barrel looks good. It's cheap to turn out, it converts crude in refinery storage to products ready for spot sale, and the over-all profit potential appears to be in the range of 50¢ a bbl. greater than the realization from a barrel of normal output.

"But the situation is that it's impossible for one company, or even one refinery, to grab for the incremental barrel. It shows up too quickly—in the supply channels, and then everybody tries to get in." The net effect, he adds, is a price decline on all the barrels—not just the incremental barrels—turned out.

In addition to the two basic causes of excessive inventories, the industry in recent years appears to have ignored the seasonal fluctuations in demand trends, which can be predicted with a high degree of accuracy.

During the third quarter of this year, for example, total demand averaged 1,523,000 b/d less than in the first quarter. That pattern is almost constant.

Yet the total new supply in the third quarter—domestic production of crude and gas liquids plus imports—was only 700,000 b/d under the first quarter.

New supply in the second quarter exceeded demand by 387,000 b/d, and the excess in the third quarter averaged 485,000 b/d.

The "spread" between the peak-demand winter month and the lowest-demand summer month amounts to 2.5-million b/d.

Responding to upward bounces in demand, producing and refining rates are stepped up to levels far in excess of the average annual requirements. But as demand tapers downward, the rates of production and refining throughput are not trimmed fast enough and sharply enough.

Another factor that oil companies apparently fail to realize is that demand for petroleum products is essentially inelastic.

The only stimulants to heating oil demand, for example, are the number of consuming units and the tempera-

tures during the heating season. In a given heating season, the price of heating oil has no basic effect on demand.

Similarly, gasoline demand is not influenced by price. The condition of highways and congestion of traffic—both of which are beyond the control of oil companies—have a far greater influence on demand.

A price reduction of a size that can mean the difference between profit and loss for refiners—only a small fraction of a cent—won't induce greater consumption of any product.

The surplus producing and refining positions of the industry may tend to diminish over the long run. But at present they are so great that only the tightest restraints both by state conservation agencies and by management can prevent a build-up of excess stocks.

Actually, surplus inventory positions have been the rule during most of the postwar years, with management exercising little apparent control to prevent the excesses from reaching the level of price deterioration.

Any "correction" has come from the unexpected—strikes, wars, abnormally cold winter weather, and even "nationalization" moves by foreign governments, such as in Iran.

It does little good, for example, for the Texas Railroad Commission to invite company heads to estimate "desired" stock levels if the industry continues to exceed those levels substantially.

That was the case during all of this year. And it is the reason that the Railroad Commission has asked all buyers of Texas crude to present information concerning individual stock positions on crude and products at its next statewide hearing to be held on Nov. 20.

The commission wants the companies to provide their actual positions as of Nov. 1 and their estimates of the desired position as of that date.

And undoubtedly, the commission will compare such information with the estimates of the desired Nov. 1 position that it received last March.

A "net loss" on inventories is difficult to understand in an industry that prides itself on continual improvement in operating efficiencies.

Canada Told: 'Go Slow' On Oil Goals

It's going to be difficult—if not impracticable—for the Canadian oil industry to achieve, within the alotted time, the export and growth targets proposed by the Borden Commission.

That's the way two of the Dominion's top oil executives size up the domestic situation now. Both agree that the goals are desirable and attainable—but they have serious reservations about the time limitations.

One said bluntly that the urgency angle had been overemphasized.

The Borden report was made public two months ago, (PW—Sep.4'59, p11).

It recommended that the Canadian industry increase its domestic and export markets for Canadian crude by 200,000 b/d by the end of 1960.

The alternative, it warned, could be a pipeline from Western Canada's oil fields to the Montreal area, to displace crude coming from Venezuela and the Middle East.

Counseling the government against hasty action were E. D. Brockett, president of British American Oil Co., Ltd., and W. M. V. Ash, president of Shell Oil Co. of Canada, Ltd.

Brockett, at a Toronto meeting of the Empire Club of Canada, declared:

"We do not believe that a moderate delay in reaching [the target] would have any material effect on the future development of the industry, or call for drastic action on the part of the Canadian government to increase domestic targets for our oil."

In similar vein, Ash told the Canadian Club of Montreal that "the solution will be illusory if it is sought by flying in the face of economics and normal commerce."

He expressed belief that the Canadian oil industry is reaching "manhood," and that "there is nothing in the situation that, if left alone and not tinkered with, we cannot by ourselves put right."

Both executives expressed firm opposition to the Borden alternative of a crude pipeline from the Alberta oil fields to the Montreal market.

Brockett said his firm doesn't object to a line that would be economically sound. But all of its studies have indicated that the pipeline project is not economically feasible at present.

"We feel," he said, "that the enforced movement of Canadian crude into the Montreal area would result in either a reduction of wellhead prices to the producer in Western Canada, or higher prices for refined products to the consumer in Eastern Canada—quite possibly a combination of both."

Ash said the competitive disadvantage of Alberta crude in Montreal would have been on the order of 25¢ to 35¢ per bbl. last December.

Too, he continued, such a pipe line "might well jeopardize the present exemption of Canadian crudes from U.S. import controls." He stressed that, in the long run, the line would constitute a built-in high-cost element in Montrealers' oil and gas bills.

Of more immediate concern is the matter of natural gas exports, both executives said. They called for prompt action by governmental agencies.

Brockett put it this way: "The penetration of markets for Canada's surplus gas is a matter of extreme urgency, for producers must soon begin to realize a reasonable return on their investment in this phase of the business.

"It is essential that prompt action be taken by the National Energy Board and the Canadian government to approve pending applications for exports before markets that are available today are lost to other sources of supply."

Ash noted that products for which export permits are being sought represent a potential gain in income to the industry of $100-million in the first year, rising to $170-million five years later.

He expressed hope that there would be a minimum of delay on the part of governmental agencies, saying, "The industry has been in an agony of uncertainty in this matter long enough."

Brockett mentioned that the high level of crude production projected over the next ten years will result in the corrollary production of more than 3-trillion cu. ft. of solution gas.

Meanwhile, the crude marketing battle moved deep into the heart of Canada.

A tanker loaded with 55,000 bbl. of Venezuelan crude docked at Fort William, on the upper Great Lakes, and discharged its cargo at the plant of Husky Oil & Refining, Ltd. (page 100).

This means that foreign crude has moved 1,200 mi. closer to the Canadian oil fields, breaching the long-established market wall of Western Canadian crude.

Venezuela Set to Enter Labor Talks

Venezuela's President Romulo Betancourt gave every indication last week that the government will step in with a compromise offer to settle the oil labor contract differences.

The President made his first public statement on the month-long oil worker contract negotiations before a cheering crowd at Cabinas—headquarters of Venezuela's biggest oil-worker union local.

Betancourt threw his personal and political prestige behind a plan for the government to take over some of the social benefits now provided by oil companies.

The government moved in on the contract negotiations when it became apparent that oil workers' demands would hike oil companies' costs substantially, resulting in a reduction in Venezuela's oil revenues. And granting the demands would widen the gap between living standards of oil workers and the rest of the population in oil areas.

Government responsibility for social services has been a long-standing goal of oil companies in Venezuela.

Underlying the importance of these services to oil-company costs is this fact: Thus far, these services—together with indirect wages and other fringe benefits—have raised the total labor cost per oil worker to nearly triple the industry's base wage rate.

Oil companies don't expect their expenditures for such benefits to be entirely eliminated by the government. But a workable agreement would be a step in the right direction.

Several companies, in recent years, have invested heavily in their own programs aimed at eventual reduction of social obligations. Creole, in particular, has financed a home-ownership plan for its workers to get itself out of the housing business.

Pending an agreement on social benefits, 96 of the 165 clauses in the oil worker's draft contract have been set aside.

Negotiations on the remaining clauses are being continued between the Venezuelan Oil Workers Federation (Fedepetrol) and the Big Three oil companies—Creole, Shell, and Mene Grande.

Government agencies haven't come up yet with any concrete proposals for taking over oil companies' obligations in housing, commissaries, schools, medical and hospital care, and worker transport.

The big question is: Will rank and file oil workers back a contract settlement replacing specific company obligations for services with a less-clearly-defined government responsibility?

Judging from the enthusiastic reception given Betancourt last week, they might. With the urgency of signing a new contract—the old ones expired Oct. 16—the government may not have sufficient time to formulate concrete plans to put forth to the industry and labor negotiators.

Privately, government officials have accepted the companies' calculations that the labor union's demands for increases in wages and social benefits would add $1.2-billion to present labor costs.

Fedepetrol had estimated the cost at only $135-million.

Betancourt promised oil workers that they would get "substantial benefits" from the new contract. But he also cautioned against "unsettling" the country.

He pointedly observed that the government needs revenues to carry out public works.

He bluntly denounced Communist agitation among oil workers, declaring that contract negotiations "cannot be converted into an episode of the cold war. We are not North Americans, but neither are we Russians."

Long Beach Steps Up Waterfloods

Two more water injection plants, said to be the largest in the world, have been added to the antisubsidence arsenal of Long Beach, Calif.

They were completed in October, and raise to eight the number of plants finished in the projected ten-plant program to save the city and the Naval shipyard.

They are the Terminal Island and Mainland plants, with a planned capacity of 444,000 b/d and a network of more than 20 mi. of water distribution lines.

Engineers designed them to stabilize land sinkage in the most critical portions of the 20-sq. mi. subsidence bowl in the Wilmington field.

They will serve Fault Blocks II and III, which cover the critical shipyard area. Subsidence has reached a peak of 26 ft. in this section.

The new installations were financed, at a cost of $2.5-million, by the City of Long Beach. This will be repaid over a ten-year period through a small amortization charge on each barrel of water.

The crash program to stabilize subsidence is rapidly pushing the Wilmington field to the status of the world's largest waterflood.

At present, 331,000 b/d are being injected through 98 wells. This places the Wilmington flood second in size to that of the Sacroc flood, in West Texas, where 400,000 b/d are being injected.

Engineers anticipate that by the end of the year, there'll be a total of 120 injection wells at Long Beach, handling 435,000 b/d.

Complex unitization problems make it difficult to forecast when the program will reach its eventual goal of 1-million b/d through 268 injection wells.

S. M. Roberts, subsidence control administrator, says the "responsible oil industry of California has cooperated in the program."

The big problem, he says, is the fact that there are an estimated 25,000 royalty interest owners in the Wilmington field, which, in the early phases of its development, was the site of considerable townlot activity.

NEXT WEEK in Petroleum Week

Reductions in costs of building and operating refineries are essential if profits are to be made from processing.

The importance of cost-cutting is so great today that many refiners feel the time has come to re-evaluate completely the philosophy which has governed the design and operation of processing plants.

Refiners, process developers, and engineering firms studying the problem have appraised many techniques that are lowering costs.

A special report next week will describe the new approaches that can trim refinery costs and improve profit margins.

Midwestern Gets O.K. on Canadian Gas

- **Federal Power Commission authorizes 500-mi. line to haul 204-million cf/d from Manitoba to Wisconsin.**
- **Happy Canadians call it "best news in years," and anticipate export approvals by end of year.**

The Federal Power Commission has given Midwestern Gas Transmission Co. the go-ahead for a natural gas pipeline from Manitoba to Wisconsin.

FPC, in an almost anticlimactic action last weekend, put the finishing touches on the U. S. end of a four-year hassle for the lucrative Upper Midwest gas markets.

The commission approved plans by Midwestern, a wholly owned subsidiary of Tennessee Gas Transmission Co., to build a $52.2-million, 500-mi. pipeline to bring 204-million cf/d of gas to the U.S. from Canada.

The joy in Canadian gas circles was unrestrained, and brought optimistic forecasts that the Dominion's National Energy Board would expedite pending export applications.

A spokesman for Hudson's Bay Oil & Gas Co. termed the FPC decision "the most exciting news in years—the most exciting since the discovery of the Pembina oil field or the launching of the first major natural gas pipeline projects in Canada." His statement continued:

"The export of surplus gas . . . will bring many benefits to Albertans and Canadians generally. There are some 900 shut-in gas wells representing an investment of . . . $150-million.

"Getting these wells ready for future production will require additional large-scale investments for development work, plants, gathering systems and other facilities."

He predicted that a great byproducts industry will follow in the wake, but cautioned that "this will not happen overnight."

Said S. Doug Warner, of the Canadian Petroleum Assn.'s Alberta division, "Everybody in Canada feels the same way. Export is a good thing, and let's have more of it."

A spokesman for Home Oil Co., largest single shareholder in Trans-Canada Pipe Lines, Ltd., said, "It's a fine thing that's happened. The gas business will start to pick up when all of the impediments are cleared away."

Midwestern must await FPC approval of rates, but this is not expected to hinder construction plans.

The commission put off the rate question until the exact cost of Midwestern's facilities is determined, and until a review of the company's first year of operations can be made.

Midwestern now is looking northward to a Canadian export license for its supplier before pipeline construction can start.

The company hopes that Trans-Canada, the supplier, will get the required license by early next year so that construction can begin within six months.

FPC, in its decision on Midwestern, indicated strongly that it expects the license to be issued.

Sources in Calgary are confident that this will be carried out quickly.

It has been suggested in some industry circles that the Energy Board may deal simultaneously with applications from Trans-Canada, Alberta & Southern Gas Co., Ltd., and West Coast Transmission Co., Ltd. All three already have export permits but have requested additional volumes.

Some Canadian observers feel that all necessary authorizations could be received before Christmas.

This would include approvals from provincial bodies, the National Energy Board, and the Dominion government.

Oil men in Calgary also feel that methods used for computing size of natural gas surpluses may be altered somewhat. This change, if it materializes, would place greater emphasis on growth trends as opposed to established reserves.

FPC has also authorized Michigan Wisconsin Pipeline Co. to buy 153-million cf/d of Midwestern's gas for resale to points along its line in Wisconsin.

Michigan Wisconsin plans to build a line from Marshfield to Appleton, Wis., at a cost of more than $24-million, to receive the gas.

The remainder of Midwestern's initial gas supply will go to distributors and municipalities in Minnesota and Wisconsin.

The company anticipates an eventual line delivery of 360-million cf/d, however, and expects to supply Northern Indiana Public Service Co. and Northern Illinois Gas Co. later.

FPC met a Nov. 1 deadline sought by Midwestern. The company's supply contract with Trans-Canada would have expired at that date, if FPC approval had not been obtained. Midwestern feared a renegotiated contract would have meant higher gas prices.

The FPC decision—and the presumed Canadian approval—ends a

Here Are More of Oil's 1959 Earnings

(in thousands of dollars)

Company	3rd Quarter Net Income	% Change 1959-1958	9 Months Net Income	% Change 1959-1958
Arkansas Fuel	$ 1,220	—11.5%	$4,249	— 9.6%
California Standard	61,962	—12.7	180,115	— 4.1
Cities Service	8,396	+ 9.1	27,301	+ 6.0
Delhi-Taylor	1,267	*	2,727	*
Gulf	74,661	—15.8	216,475	+ 5.9
International Petroleum	5,700	+39.0	15,800	+20.6
Ohio Oil	8,767	+10.4	27,323	+18.7
Ohio Standard	4,670	— 2.4	17,959	+ 2.8
Plymouth	612	—49.0	2,796	— 2.8
Richfield (L.A.)	7,495	+54.3	18,189	+19.2
Sinclair	7,993	—15.5	35,025	+10.1
Sinclair Venezuela	. . .	. . .	7,091	—67.2
Texaco Canada	2,628	— 4.8	7,499	+ 5.3
Texas Gulf Prod.	783	—13.7	2,875	+13.9
Texas Pacific	1,541	—15%	5,183	+24.4
Trans-Mountain Oil Pipe Line	731	*	1,128	+500.0
Union Oil	9,129	— 2.6	19,900	+ 4.5

*Loss in 1958 period.

fight started in 1955 for the Upper Midwest gas market.

Midwestern's battle with several competitors—including, in those years, Michigan Wisconsin—resulted in FPC's refusal to accept Midwestern's initial plan for importing Canadian gas.

But after declining Midwestern's earlier proposal, FPC suggested a new attempt, and indicated it would receive favorable treatment.

When the one-time enemies, Midwestern and Michigan Wisconsin, filed their joint application for service earlier this year, the industry regarded FPC's latest action as a foregone conclusion.

Taxes Threaten Road Programs

A warning that "we have now reached the point where gasoline is being taxed off the market" was sounded anew this week by an industry spokesman.

The trend to small cars is only one example of the motorists' rebellion against higher taxes and increased out-of-pocket costs for gasoline, according to Lloyd F. Thanhouser, vice-president and general counsel of Continental Oil Co. Motorists have no alternative but to cut down on the amount of gasoline they use, he told the National Tax Assn. in Houston.

It's not only bad news for the petroleum industry, but it also jeopardizes the nation's highway program.

"Both the federal program and the highway programs of the states depend for their support almost entirely on one type of revenue—the gasoline tax," he commented, explaining:

"The full weight of highway financing has been loaded on this single tottering column, which is already cracking.

"If it shatters, the whole structure of highway improvement will come crashing down in ruins."

PETROLEUM COMMENTS / By Wanda M. Jablonski

This Shoe Will Fit Several Feet

Everybody talks about good public and press relations. Everybody is in favor of it—like being in favor of Mother. But at least some people do something about Mother.

What brings this to mind at the moment is a memo to the editors turned in by one of our staffers (and a very conscientious one at that). Here it is, unedited except for the omission of certain names:

* * * *

"Last year sometime, Company X chairman gave a fat speech to the Philadelphia Society of Security Analysts, in which he gave out with considerable news that had never gone out before: huge refinery expansion at such-and-such place, further development of the properties they had acquired, and so forth. All of it was "news"—in the strictest sense of the word.

"A week or two after the Philadelphia speech, I was invited to some luncheon deal or other at which this chairman was speaking. In the source of the preliminaries, I latched onto so-and-so, a v.p. in charge of p.r. among other things, and told him I had had difficulty in getting dope on this subject—and since the chairman had said so much (or some, anyway) about it, I would expect that the company would cooperate in filling out the details, since the over-all was no longer a closely guarded secret. (Not that there's a damn thing to be secretive about!)

"He immediately backed away. Told me the company's house organ was about to come out with a big piece on this subject—but that he'd see that I got advance proofs. Big deal.

"I got 'em—a few days before the magazine was to come off the press and be mailed. There were holes throughout. Lovely for the stockholder, but hardly adequate for an oil magazine. So I trotted over to Company X. Again the run-around.

"For various reasons—no, I couldn't just chat with the man responsible for that area operation, nor the exploration-producing dept.—'too hard to catch them' . . . 'would take several people' . . . 'would be easier for us to catch each one and get the answers to your questions.'

"Now hear this. I had to sit down with a stenographer, the copy of the house magazine in hand, quote the magazine passages on which I wanted elaboration, and state my questions. Harder than trying to interview Khrushchev through God knows how many channels. I NEVER GOT AN ANSWER TO THOSE QUESTIONS—not to this day—and that was over a year ago.

"You can see why I will have no dealings whatever with Company X if I can possibly avoid it. And if they don't like what I write about them in the future, they better not blame me."

* * * *

Now, this is not to say that we expect oil companies suddenly to divulge all their secrets just because the press wants to know something. That was not the issue here. There is a great difference between divulging secrets and cooperating on a correct report on known company operations.

Nor does this criticism apply to all oil company public relations departments. There are those that do a sterling and conscientious job. But there are many—far too many—who do a lot of boasting about their public relations, and little else.

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What's New / IN THE INDUSTRY

Oklahoma's crude allowable for November is 540,000 b/d, up 10,000 b/d over October. In issuing its order, the Oklahoma Corporation Commission raised the minimum per-well allowable from 17 to 20 b/d, the same rate as last May. It indicated that the order will be held open for an emergency hearing, should such be necessary.

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The Japanese government is thinking of raising taxes on crude and petroleum products to help the coal industry. Consumer groups are protesting strongly. Virtually all of Japan's crude and fuel oil is imported, and higher tariff rates will tend to upset the country's export economy, consumers claim.

•

Universal Oil Products Co. reports a net income of $1,813,212 for the 7½ months it has been a publicly owned corporation. This is equal to 63¢ per share on 2.9-million outstanding shares.

Reed Roller Bit Co.'s third-quarter earnings are $209,282. For the first nine months, net profits are $184,567—equal to 27¢ a share, compared with a 15¢-per-share loss for the comparable period of 1958.

•

About 4,000 oil and gasoline truck drivers in the Chicago area are getting a 10¢-an hour wage increase. A one-year agreement approved last week-end by Teamster locals sets the new scale at $2.95 for the day shift and $3.07 for night workers. The pact also provides for $1 a week additional employer contribution to the health, welfare, and pension fund.

•

Texas Eastern Transmission Corp. has started to operate the Project Five pipeline as part of its Little Big Inch division. The 150-mi., 10-in. line extends from El Dorado to Helena, Ark., and formerly was operated by Gulf Refining Co., of Houston. It was constructed in 1942 by the government.

•

Canada is revising its leasing rules for the Arctic area to better its chances of getting low-cost oil. Alvin Hamilton, Minister of Northern Affairs & Natural Resources, says the changes will avoid broken-up land patterns of small leases which could result in high acquisition costs and difficulties in developing pools. Hamilton also disclosed that oil and gas regulations have been ready for cabinet action since May but are being held up for a "major" reason, which he refused to discuss publicly.

•

Feb. 16 is the date for Transwestern Pipe Line Co.'s new hearing before the Federal Power Commission. Texas independent producers sought and won the rehearing after the commission cut wellhead prices below the initial contract specifications.

•

The American Petroleum Institute will have a new address later this month. It's moving across the street to the new Time-Life building on Nov. 20, and, for the first time in years, all of its offices will be consolidated on one floor of one building. The address will be 1271 Avenue of the Americas, New York 20. Staff people have been doing double-duty, getting ready for the annual meeting next week, and the movers immediately afterwards.

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ENGINEERING LEADERSHIP 20 YEARS 1939-1959

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
November 6, 1959

Several changes are shaping up for the oil imports program. The mandatory program has been undergoing almost constant review since it was started last spring. Now, the White House executive order creating the program again is expected to be altered—perhaps by the end of the month—in several particulars.

•

The method of determining allowable crude imports to the West Coast probably will be revised. California oil producers have been pressing the Administration to consider all crude imported without control from Canada as part of the West Coast's total supply. The Oil Import Administration is expected to ask President Eisenhower to approve the change. The present authorized level of crude imports into District V is about 232,000 b/d. About 23,000 b/d of Canadian oil is counted against the total allocation, in line with the Presidential decree eliminating controls on pipeline shipments from Canada. The proposed change would deduct another 30,000 to 35,000 b/d of Canadian oil, and, in the present situation, would reduce the total District V imports of crude and unfinished oils from other countries to 200,000 b/d or less.

Whether the West Coast imports will rise or fall next year depends on changes in supply and demand, though California production has been falling, sparking the requested change sought by the local producers. District V allocations, unlike those for other areas of the country, are determined by the difference between supply and demand. A sharp drop in California crude production might offset the reduction which would come if all Canadian imports of crude are counted as part of the area's "local" supply.

•

Another change under consideration is an increased authority for the Oil Import Appeals Board. Washington officials agree with many in the industry that the board has been something less than a true appeals body—rather, more of a chaplain. The proposed White House changes may give the board the power to increase an individual allocation, instead of only to decide whether the allocation awarded by the Oil Import Administration is proper.

Such an action not only would require a change in authority, but also a "kitty" of barrels from which OIAB can draw. A strengthened appeals board also would take the mandatory program off the hook in its inability to deal with "newcomers"—companies unable, because of lack of historic standing, to obtain authority to import residual fuel oil.

Government planners ran into difficulties trying to figure a method by which terminal operators and others could become residual importers, without increasing the size of the program to elephantine proportions. An appeals board with the power to grant additional or new allocations might solve the "newcomer" problem.

•

Conversely, the residual import situation will continue unchanged, though there is pressure for increasing the number of importers without increasing total allocations. OIA has rebuffed attempts to increase allocations, and stocks, officials say, are sufficiently high so that an increase early next year is unlikely.

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But exploration is only one part of Stanvac operations. Throughout Asia, Africa and the lands of the Pacific, Stanvac drills for oil, then refines and markets it in many forms. In this way, Stanvac helps the people in these areas to help themselves toward a better life.

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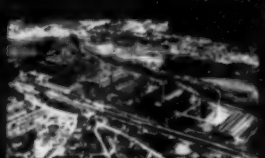
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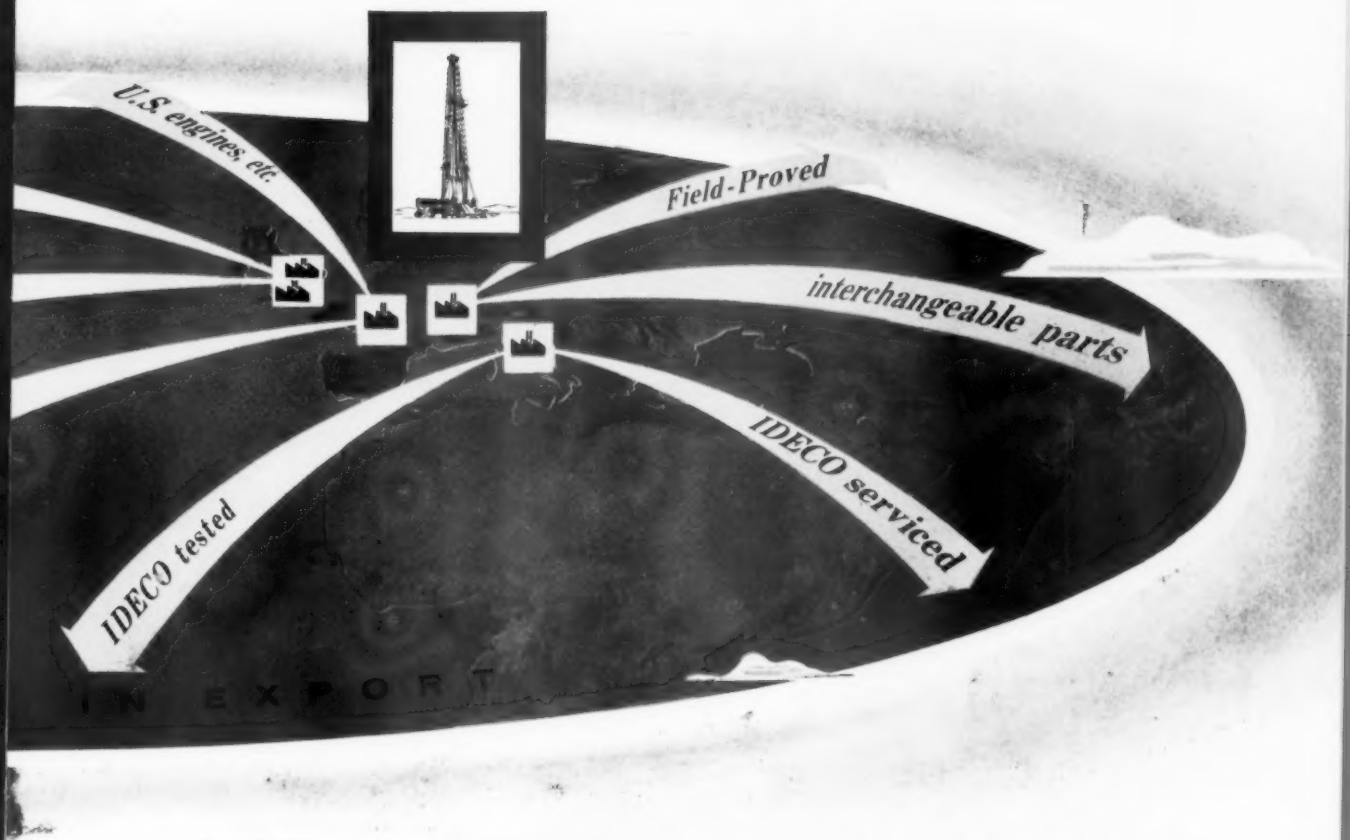

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In addition to Baker production packers, the milling tool may be used for other drillable packers of similar design. It is available domestically on a low-cost rental basis, through your experienced Baker Serviceman—ask him for complete information or write for Catalog Supplement No. 353.

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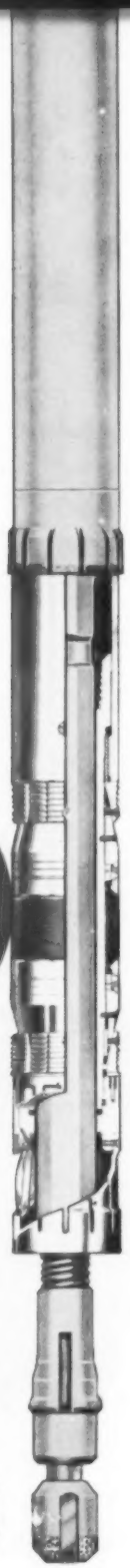

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Major Texas Secondary Recovery Projects Proposed in the First Nine Months of 1959

Field	County	Operator	Lease or Unit	Original oil in place in project area (in bbl.)	Estimated additional oil to be recovered as a direct result of project (in bbl.)
Sherman (7,500-ft.)	Grayson	Standard of Texas	nearly field wide	100,000,000	24,400,000
S.M.S. (Canyon Sand)	Kent	Pan American	field wide	no estimate	19,000,000
Dollarhide (Devonian)	Andrews	Pure	Pure Unit	104,650,000	11,000,000
Sadler (Pennsylvanian)	Grayson	Mobil	3,174-acre unit	50,000,000	11,000,000
Port Acres (Hackberry)	Jefferson	Michel T. Halbouty et al	field wide	24,000,000	7,136,000
Dollarhide (Devonian)	Andrews	Cities Service	North Dollarhide Units A & B	33,000,000	5,800,000
Dollarhide (Clearfork)	Andrews	Pure	Pure Unit	48,700,000	4,882,500
Eastland County Regular	Eastland	H. L. Bilhartz & Assoc.	Ida Slayden; J. G. Christmas "A"; & J. W .Terry	no estimate	2,952,000
K.M.A.	Wichita	W. A. Moncrief & Sons	1,151-acre unit	11,878,320	2,900,000
East Antelope (Bryson)	Jack	Hamman Oil & Refining	Lewis Johnson, et al	5,314,000	2,880,000
Panhandle Hutchinson County	Hutchinson	Kerr-McGee	Whittenburg	16,940,000	2,820,000
West World (Strawn)	Crockett	Cities Service	field unit	23,750,000	2,700,000
Howard Glasscock	Howard	Amerada	Dora Roberts	no estimate	2,600,000
K.M.A.	Wichita	Cascade Petroleum, et al	1,600 acres, various leases	13,152,000	2,415,000
Richardson-Mueller (Caddo)	Montague	Continental	field unit	16,700,000	2,345,000
Kelsey Deep Zone 19-A (c)	Brooks	Humble	field wide	no estimate	2,300,000

MORE THAN 100-MILLION BBL. of added oil will be recovered by these projects, largest of 254 requested. That's why . . .

In Texas, Secondary Recovery Is BIG

New secondary recovery projects proposed in the first nine months of this year will add the equivalent of two major fields to Texas crude reserves.

The 254 projects involve mostly waterfloods, but some gas injection projects also are included, as well as thermal recovery. None is expected to be rejected.

The projects are located in 58 of the state's 254 counties, and in all of the state's 11 districts. There were, coincidentally, as many requests for secondary recovery projects as there are counties in the state.

The total number of requests is considered higher than average. This is so, it's generally agreed, because of the low number of producing days allowed so far this year in Texas.

Says one observer: "Operators are spending their money on increasing ultimate recovery from reserves already found, instead of drilling wildcats.

"Such programs, under the Texas Railroad Commission's policy of permitting such production as is necessary to prevent bypassing of oil after a secondary sweep has become effective, are resulting in increased allowables for them at the present time."

Estimates are that the 254 separate projects will lead to recovery of more than 200-million bbl. of additional oil.

The projected total for 241 of the projects is 188,934,938 bbl., based on estimates submitted to the Texas Railroad Commission. No estimates were submitted for the other 13 projects, including two which alone would boost the over-all total well beyond 200-million bbl.

North Texas leads the 11 state districts in the number of secondary recovery projects requested during the first nine months of the year.

This district accounted for 107 projects, more than a third of the total.

A total of 31 projects is listed for Wichita County—tops for the district and for the state. Archer County was second in both categories with 18 projects. Cooke County follows with 13 projects; Young with 12; Clay, 10; Wilbarger, 9; Jack, 7; Montague, 4; Grayson, 3; and Baylor, 1.

In one case, a single project—in

K.M.A field—extends into two counties: Wichita and Archer.

West Texas follows with 54 projects in 14 counties in districts 7-C and 8. The largest number of projects in a single county is 10, in Ward, followed by 9 in Winkler.

Other counties, and number of projects, are Andrews, 7; Pecos, 7; Crockett, 6; Ector, 6; Howard, 2; and Dawson, Hockley, Kent, McCulloch, Midland, Runnels, and Tom Green, 1 each.

Only one project is listed for East Texas. The number of counties slated for new waterfloods in the remaining districts ranges from two to eleven.

The single project in East Texas involves Cass Hill pool, Cass County.

Great Lakes Drilling Threatened

A Canadian-American committee believes it has won the first round in a professed campaign to halt new offshore drilling on the Great Lakes.

J. W. Murphy, member of Parliament and chairman of the Canadian-U. S. committee on water polution, told PETROLEUM WEEK last week that his committee has received assurances from the Ontario Fuel Board that no drilling will be permitted on the Canadian side of Lake Huron until 1960.

Back in September, the committee also had won a temporary suspension on the issuance of drilling permits, and a ban on licenses and leases for new land grants, on the Canadian side of Lake Erie.

But the suspension on drilling permits was lifted after one week in mid-September, and the suspension on licenses and leases was lifted last week. A reliable source told PETROLEUM WEEK that the suspensions were lifted after Ontario officials "took a look at the investments involved." Another reason, he said, was the request by one major lake operator to drill two more holes before freeze-up.

Murphy had wanted the suspensions to remain in effect "until the government is perfectly satisfied there will be no oil spillage."

The Southern Ontario Oil & Gas Assn. is expected to lead petroleum industry efforts to reach agreement with the committee before drilling resumes on a full scale next spring.

A spokesman for a major operator on Lake Erie said representatives of the association would meet with committee members and other government officials to work out "livable rules."

He added: "We're willing to abide by regulations specifying minimum operating distance from shore, and to keep out of certain areas during the tourist season, as well as make other concessions."

It's too early to say just what effect, if any, the committee action will have on drilling on the American side of Lake Erie, where New York State Natural Gas Corp. has been active.

A spokesman for the latter firm noted, however, that the company has been required to obtain an industrial waste permit from Pennsylvania, to make periodic tests of the water, and to report regularly on steps being taken to prevent pollution.

The Ontario provincial government is currently reorganizing and streamlining five laws and all regulations affecting drilling.

It's hoped that this revision will clarify responsibilities and, particularly, make the Ontario Fuel Board more autonomous and judicial in its regulation.

Provincial officials note, too, that there has been only one significant case of oil spillage for the more than 200 wells on the lakes and that, therefore, such spillage is not now a problem and is not likely to be.

One official added, however: "We think the oil companies have been slow in public relations, and have let public opinion mount against them.

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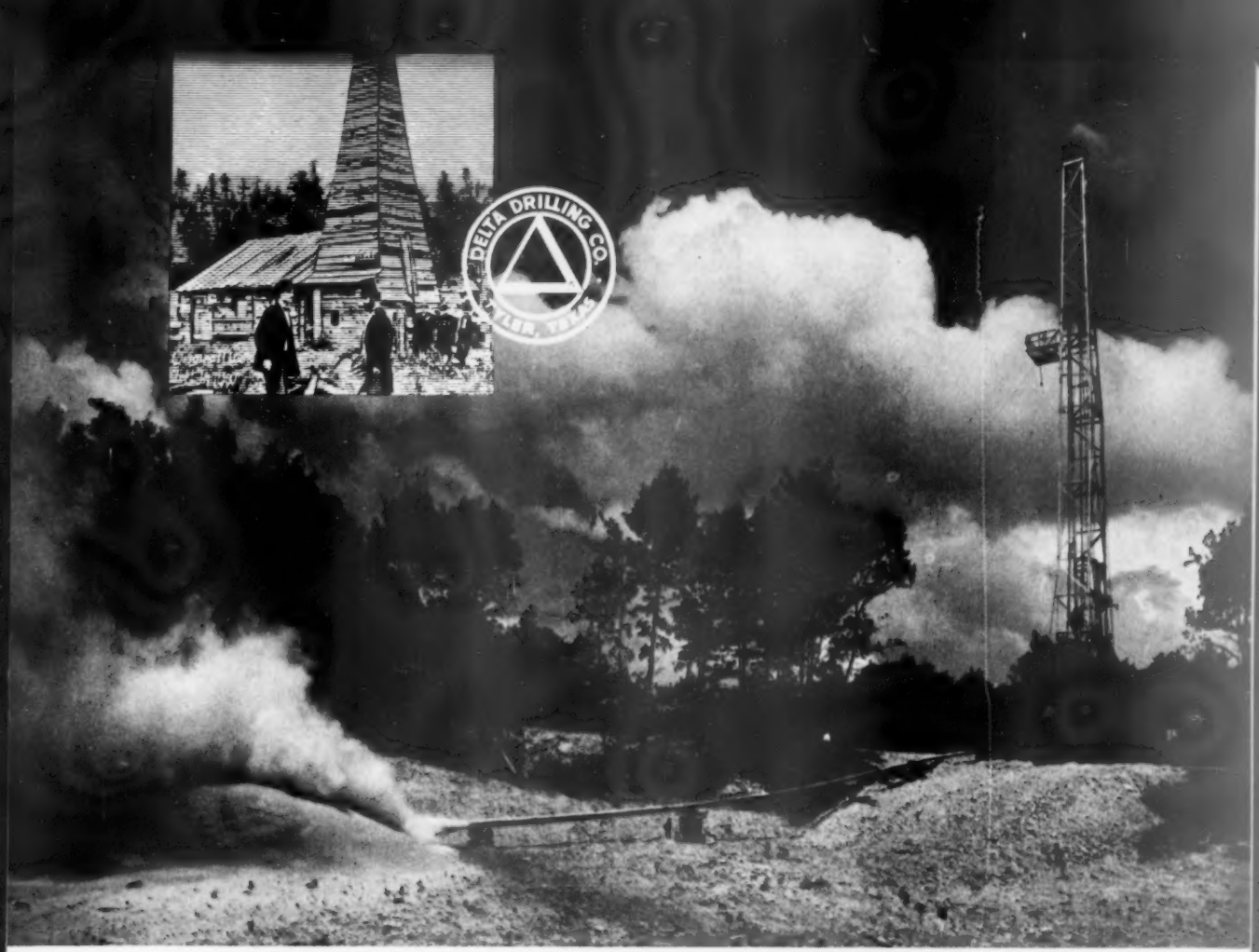

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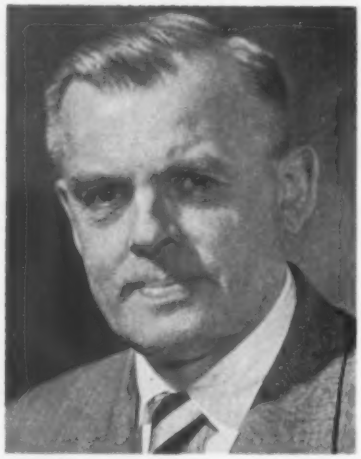
Should Arctic Operators Join Efforts?

- **A former Soviet geologist in the Arctic says "yes." Among his reasons: exploratory costs will be high, and operating difficulties severe.**

- **The Russians used salt mud to overcome permafrost in drilling, he says. But air drilling would be better.**



LEONID P. SMIRNOW, consulting geologist, once headed Russian exploration activity in the Siberian Arctic.

U. S. and Canadian companies planning to explore for oil in the Arctic should unitize operations to assure optimum results, says Leonid P. Smirnow, a consulting geologist who spent many years in the Soviet Arctic.

Smirnow told PETROLEUM WEEK this week that if companies with interests in the Arctic area work separately on their acreage, "it will only be a waste of time and money," particularly for small companies. He adds: "I know from my experience that the dispersion of such efforts can be disastrous."

Smirnow's experience in the Arctic dates back to the '30s, when he spent five years as a chief geologist in the Lena-Taymyr Basin of the Siberian Arctic. He was concerned with Arctic development up to World War II, when he was captured by the Germans.

In that time he studied not only the Soviet part of the Arctic, but all areas around the North Pole, including Greenland, the Canadian Islands, and Alaska.

These broad studies were made, he explains, "because the whole Arctic represents one geological unit, and the Arctic Ocean actually is a Mediterranean basin surrounded by mobile belts of different geological eras. The entire Arctic has a common geological life, and everything that happened in one area was to be one way or the other reflected in the whole Arctic."

Smirnow recommends that joint exploration efforts be concentrated in those Arctic areas favorable to transportation.

The basic point to remember, he stresses, is that transportation be considered as part and parcel of the overall problem of finding and producing petroleum in the Arctic.

First efforts should be directed to those Canadian Islands most favorably located for marine transportation, he says.

Operations can then fan out from those locations to nearby accessible areas. Smirnow notes that many areas now held under lease are not accessible, and that, therefore, any discovery of oil in those areas would be virtually valueless. And even in accessible areas, special tankers, possibly submarine tankers, and icebreakers may be required.

In addition, he adds, much more study is needed of the behavior and movement of ice, both in the ocean and in many straits in the Arctic area.

Permafrost and surface ice lenses pose major difficulties to Arctic operations, he says.

"Permafrost creates difficulties for construction, for drilling, for transportation in summer, and for seismic and gravity work," says Smirnow. He continues:

"Permafrost is a wrong term. Actually, it is a zone of low temperature in the ground."

Smirnow says that in the Lena-Taymir Basin, the thickness of this zone was 1,800 ft. The temperature at 60 ft. was a constant —4F. The temperature gradually becomes higher with depth, reaching the freezing point at the 1,800-ft. level.

The surface is frozen in winter. In August, defrosting occurs to a depth of 12 to 18 in. The Russians use tracked vehicles for transport purposes during the thaws.

The former Soviet geologist says the Russians built electric power stations in the Arctic despite the permafrost. Local coal was used for fuel.

Smirnow says it was necessary, however, to apply insulation between the ground and the building foundation to prevent thawing of the frozen surface, especially under steam boilers. Local dry peat was used for this purpose. Foundations of buildings were of wood, because of its low thermal conductivity. The wood beams were simply frozen into place.

Smirnow says the Russians were able to use salt muds in drilling

REINDEER-DRAWN SLEDS were used by Soviet geologists during operations near Nordvik, in the Siberian Arctic, in the mid-thirties. That's a radio tower at the right.

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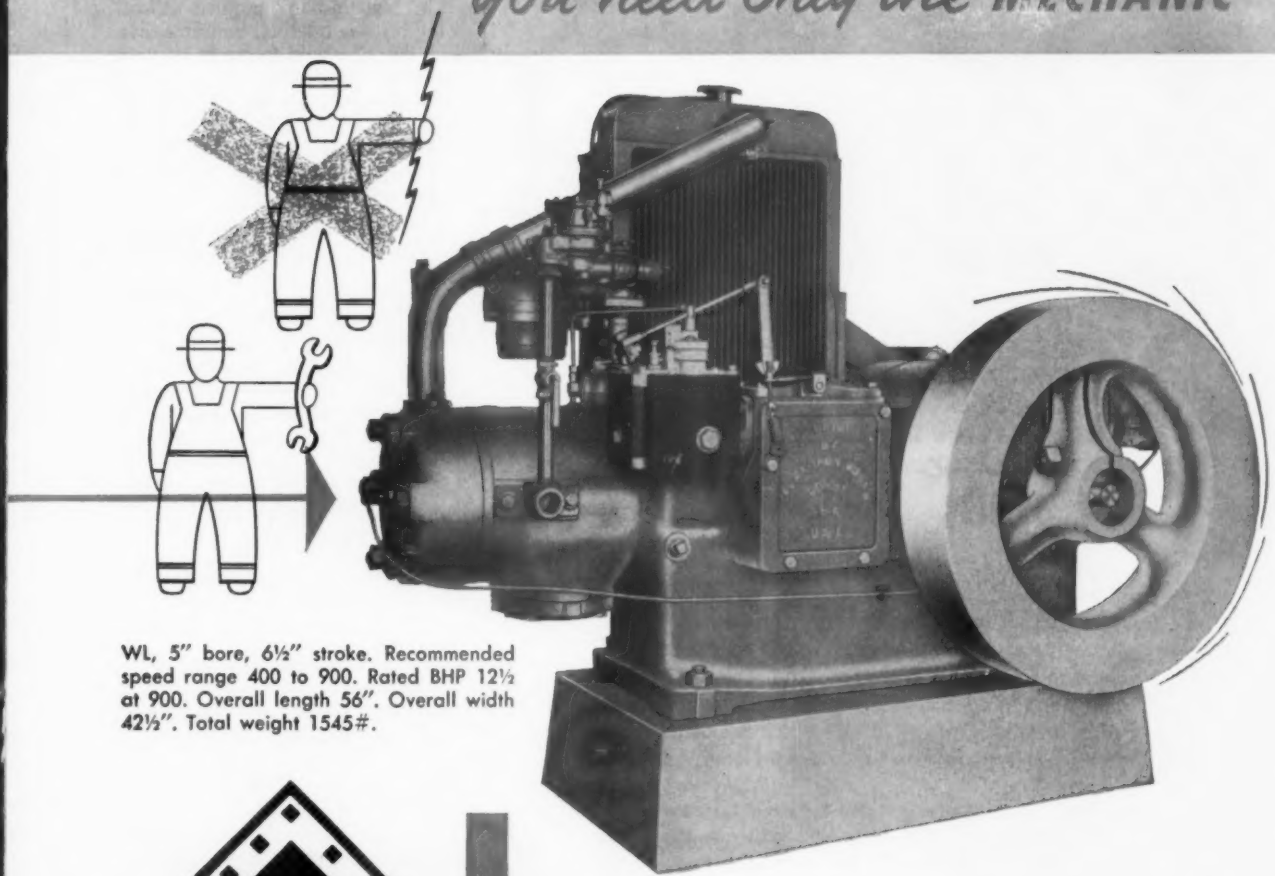

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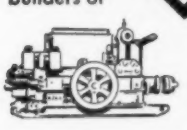

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through the permafrost in the Arctic.

"When we wanted to start drilling in the Arctic," he says, "we did not know how to fight the permafrost with muds." (Core drilling began in 1934 and rotary drilling in 1938, in the Nordvik coastal area.)

"After some laboratory work, however, we found that salt solutions could be helpful."

He relates that rock salt of a salt dome was available on the surface at the drilling site.

"First footage from the surface was drilled with a 13-degree Baume salt solution, with saturation lessening as we proceeded. When we penetrated the permafrost section, we used the usual mud without salt to prevent unnecessary coagulation of the mud with salt."

Ground fissures were another unusual problem in Arctic drilling, Smirnow reports.

"These fissures are created by seasonal changes of temperature. Surface pipe was set at 250 ft., therefore, to prevent the salty mud from traveling in the fissures to the surface."

Escape of the salt mud into these fissures almost toppled a derrick at one time, he says. The salt mud escaped to the surface in a fissure that ended up below the concrete foundation of the derrick. The surface ice on which the concrete foundation lay began to melt because of the salt mud, thereby tilting the derrick.

"We saved the derrick only by pumping boiling water down the hole to replace the salty mud up through the fissure below the foundation," says Smirnow. "This fresh water froze at the surface, thereby restoring the natural conditions of the surface ice."

Smirnow believes that air drilling could be the best solution to the permafrost problem.

There would be no problem as long as the bit was rotating, Smirnow says. "But the bit would freeze in position whenever movement stopped. It would then be necessary to pump hot air down the hole. This possible method of air drilling seems to be the best way to get through the permafrost zone quickly."

Permafrost also creates problems in geophysical work, the geologist says.

This is particularly so for seismic work, Smirnow reports. "When we started seismic work in the Arctic in 1937 to determine the slopes of a known salt dome with a thick caprock on the surface, we found that all rocks in the permafrost zone had the same velocities as the salt.

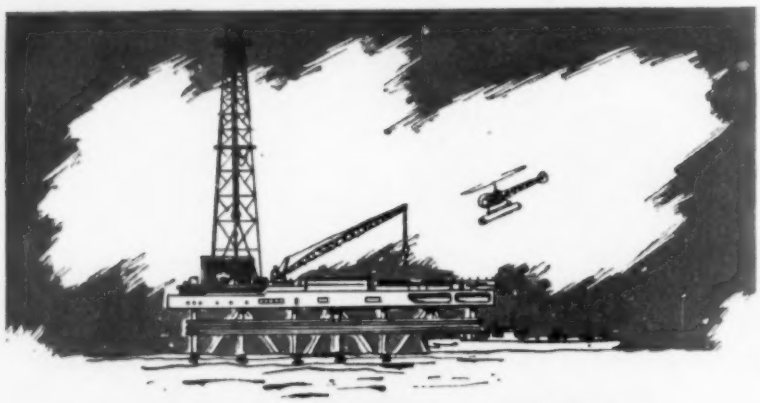
"We later learned how to exclude the abnormally high velocity in the permafrost zone. It was a matter of mathematics."

Smirnow says gravity surveys also were affected—not because of the permafrost, but because of the lenses of ice on the surface.

"These lenses are everywhere on low and hilly land. Their thickness cannot be determined. These light masses of ice on the surface, if near a gravity meter, will affect gravitational data. But we learned how to exclude their influence."

Magnetic readings also are affected in the Arctic because of the nearness of the Magnetic Pole. Smirnow says the Russians had a special station set up to register and exclude the tremendous daily changes of magnetic intensity. He says magnetic readings were particularly valuable in locating salt structures in the Tavmyr Basin.

The surface ice created further difficulties to geological mapping. "On low land, and even in hilly land, it is very difficult to see any outcrops," Smirnow says. "It was possible to see rocks in situ below surface ice only on steep sides of creek beds. We often used shafts, sometimes 12 to 16 ft. deep, to find these rocks.



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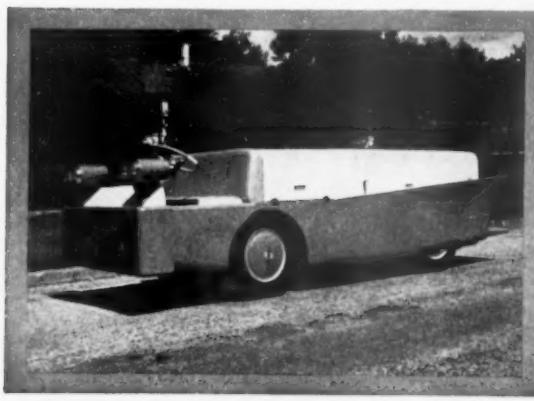

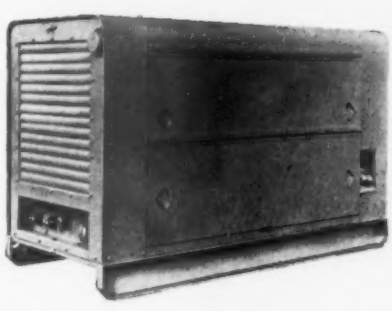

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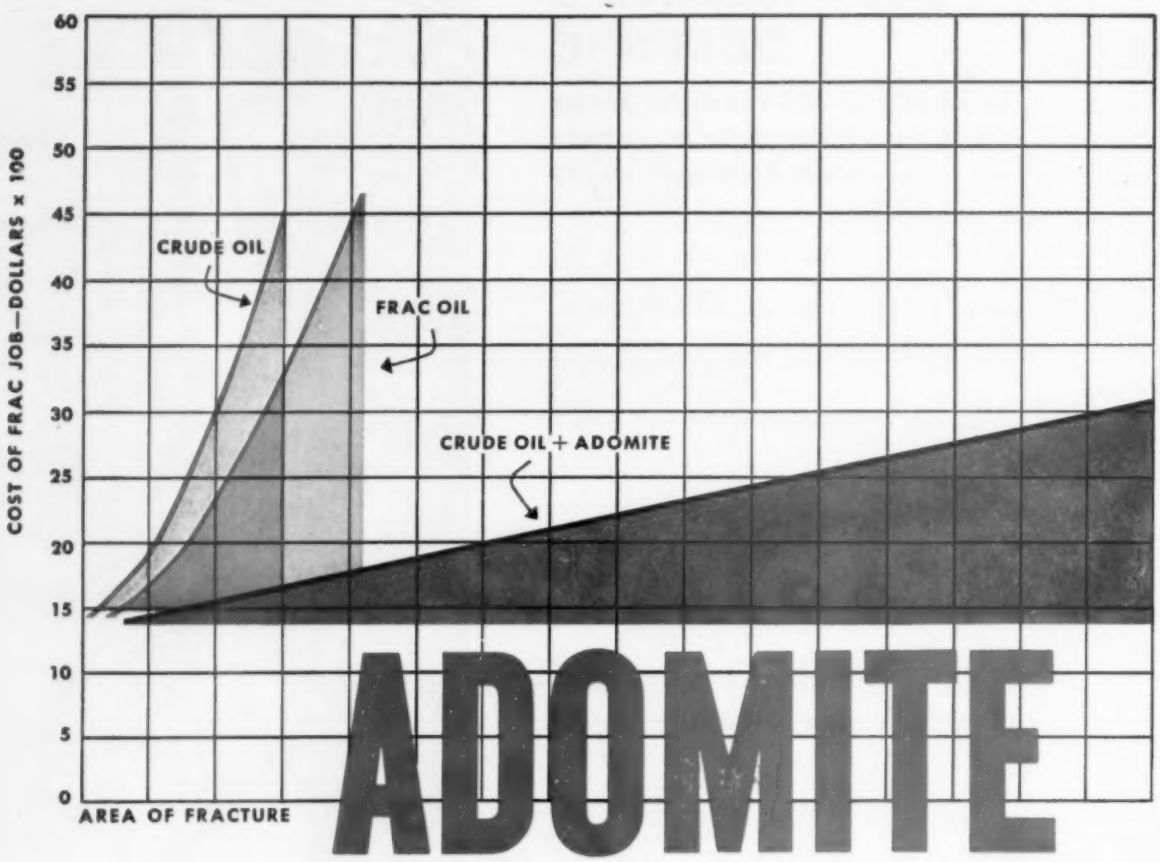

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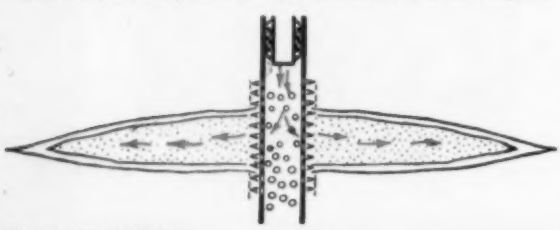

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Miscible Flood Estimates Rise

The first miscible flood ever attempted in Canada—in the Cardium reservoir of Pembina field—shows all signs of being a bigger success than was expected.

Canadian Bishop Oil, Ltd., Texaco Canada, Ltd., and Luscar Coal Co. launched the project about two years ago (PW—Feb.14'59,p25).

Bishop is operator of the program, which comprises 1,920 acres in the central portion of the Pembina Cardium zone field.

It is about 10 mi. southeast of what is now Canada's biggest miscible flood —also in Pembina—recently started by Mobil Oil of Canada, Ltd. (PW—Sep.18'59,p31).

At last report, Bishop, Texaco, and Luscar were unitizing the area, subject to approval from the Alberta Oil & Gas Conservation Board.

Basically a pressure maintenance project, the program entails both waterflood and miscible flood in the same area.

The unitization application coincides with the companies' application to conduct the dual program on a permanent basis.

With conventional projects, such as plain water floods, permanent approval is usually granted at the start. This dual project, however, was given temporary approval for an initial period of 18 months, which was followed by conditional extensions totaling 9 months.

A Bishop official says results have been quite favorable, and that "thus far a three- or four-fold production increase has been indicated."

The operator now estimates a total recovery of around 50% of the 25-million bbl. of oil in place when the project was begun.

Under original estimates, oil recovery from waterflooding was forecast as ranging from 30% to 40%, with recovery from miscible flooding at least 40%.

It was also estimated that only 12% of the oil in place could be recovered without some form of pressure maintenance.

The waterflood recovery estimate has steadied at about 40%, while the miscible flood estimate has climbed to about 60%.

Actually, however, much higher recovery is anticipated through later operations contemplated, for post-breakthrough stages of the project, to bring about a greater areal sweep efficiency.

The companies anticipate a very high areal sweep efficiency in the inverted nine-spot pattern by a progressive conversion of the inside wells to water injection after water and gas breakthrough.

The project involves 24 wells, of which 3 are for gas injection, 3 are for water injection, and the remaining 18 for production.

The spacing pattern for all of the wells is 80 acres, except between the 6 injection wells, which are on 320-acre spacing.

Injection of LPG was begun in the three gas wells in September, 1957. It was followed by injection of natural gas in February, 1958. The gas was produced from all wells in the flood. Top injection pressure was 2,400 psi.

Natural gas injection has amounted to a maximum of 5-million cf/d and a minimum of 2.5-million cf/d.

Water injection was started at about the same time as gas injection, with the injection rate averaging about 300 b/d per well. Injection pressures were maintained at about 1,000 psi. at the wellhead.

By Sept. 1 of this year, cumulative gas injection totaled over 1.7-

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billion cu. ft., and water totaled 521,864 bbl.

Some 69,717 bbl. of the water were used in one of the gas injection wells to pad out the required injection volume. This was necessary because a decline in gas production indicated a possible future shortage of the amounts required for the total fluid injection.

Gas injection now amounts to 2.5-million cf/d. Breakthrough will send this figure upward, in that produced injection fluid will be recycled.

"We have indications that 2 of the 18 producing wells are in the initial stages of gas breakthrough," a Bishop official says.

No water breakthrough has occurred so far.

Field Comes Alive In 26th Year

It took a long time, but the Vernalis (Calif.) gas field is finally coming into its own.

The field is located 10 mi. southeast of Tracy, San Joaquin County, and 50 mi. southeast of the San Francisco Bay area.

Gas was first found there in 1941. But an offset to the discovery was discouraging, and drilling in the area was discontinued. It wasn't resumed until last year.

Vernalis has yielded 12 producers since May, 1958.

Great Basins Petroleum Co. and Porter Sesnon—a San Francisco independent—started the current play with the May, 1958, completion of No. 13-23 Sesnon-TLW, section 23-3s-6e, for 2.5-million cf/d from 3,860-75 ft. and 3,880-85 ft. in the Cretaceous.

They had decided that the area justified a drilling program after making a detailed study of the area and of such logs as were available.

Great Basins and Sesnon have completed nine wells for production ranging from 5-million to 10-million cf/d.

Standard Oil Co. of California has completed three wells since May, 1958.

Proved gas reserves in the field now stand at more than 100-billion cu. ft., ten times as much as all the gas produced from the field prior to 1958.

Production has been from nine individual sands, at depths ranging from 3,000 to 5,000 ft.

Starting at about 3,000 ft., the sands include the Garzas, three separate sands in the Azevedo zone, four in the Blewett zone, and one in the Tracy zone.

All are Upper Cretaceous in age. The sands vary in thickness from 20 ft. to 50 ft. They are extremely lenticular, and correlations are difficult.

With limits of the field lacking definition to the south and east, more drilling is scheduled for the coming year.

Great Basins has approximately 100,000 acres in the general area, and

plans additional drilling after the first of the year.

California Standard holds 5,000 acres in the area.

Proximity of the field to San Francisco promises a ready market for the gas.

Great Basins, at last report, was negotiating with Pacific Gas & Electric Co. for the sale of gas from Sesnon-Great Basins wells.

Vernalis field got off to a discouraging start in 1932 with a dry hole.

Union Oil Co. of California backed the test, which went to total depth of 5,511 ft.

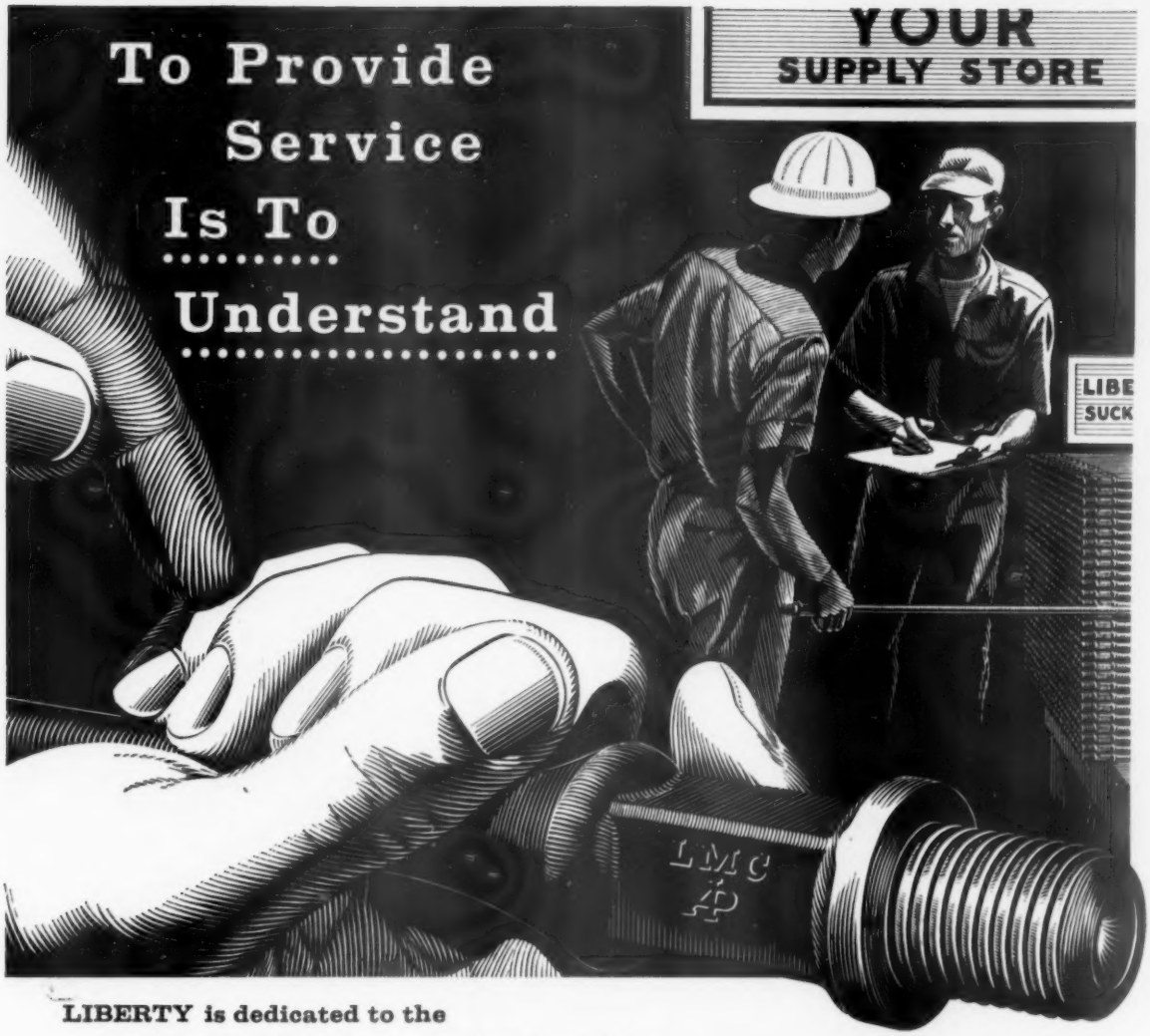
Cores showed some gas but there was no particular market for gas at the time, and the company was looking for oil. The hole was abandoned untested.

The field's first producer was brought in nine years later.

California Standard moved in ½ mi. southeast of the Union dry hole and drilled and completed No. 1 Blewett Community section 25-3s-6e, for 10-million cf/d from 3,872 ft.

Standard's second try, ½ mi. southeast of the first, was a 5,506-ft. dry hole. And the third, though completed, fell short of production needed to encourage further drilling.

Drilling activity stood at a virtual standstill until Great Basins and Sesnon touched off the current play in May, 1958.



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LARKIN LEADERSHIP HAS BEEN EARNED BY YEARS OF DEPENDABLE PERFORMANCE

Revenue from Formation Water?

There is a possibility that magnesium, bromine, and other elements may be extracted commercially from formation waters of Alberta fields.

This possibility is being considered in the wake of recent studies conducted by the Alberta Research Council.

Oil companies have shown only academic interest, so far, in the provincial government's report outlining possibilities of mineral extraction from formation water.

Since mineral rights, in most cases, are held by the government, the contents of formation waters are not the property of the operators. There is an exception to this, of course, in the case of freehold lands in the province.

One operator contacted by PETROLEUM WEEK said that, while he would check with the "eggheads" in his company, he didn't think that "we could care less for magnesium."

It's not known yet just what impact there would be on operators should other interests be granted permission to establish extraction plants at oil fields where contents of formation waters warranted it.

One informed source said that several companies (not identified) had "expressed interest" in possible commercial extraction of minerals from formation water in Alberta.

"They are people of sufficient size to be interested, since a fair amount of money would be needed to carry it through," he added.

Wizard Lake and Redwater are cited as examples of fields where formation waters might be processed because of high mineral content.

The government report said waters from Wizard Lake field contain about 17,000 milligrams per liter of magnesium, 1,400 of bromine, 18 of iodine, 20,000 of calcium, 46,000 of sodium, 195,000 of chloride, and less than 200 each of bicarbonate and sulfate.

Magnesium metal, or one of its compounds, is used in high-strength and lightweight structural alloys and for many other purposes in the steel, copper, cement, fertilizer, textile, and chemical industries.

The magnesium concentration in formation waters in some wells in Wizard Lake field reaches 17,000 milligrams per liter (5.96 lb. per bbl.), or over 12 times that of sea water.

The report noted that the amount of magnesium theoretically recoverable from Redwater field may be as high as 462,000 lb. per month.

Though both fields have high concentrations of minerals in formation waters, only one — Redwater — has enough water volume to support commercial operations.

A spokesman for Texaco Exploration Co., major operator in Wizard Lake, and a spokesman for the Research Council agreed that there would not be enough water to make extraction there commercial.

The field, which is near Edmonton, apparently was cited by the Research Council as an example of what the formation waters of some Alberta oil fields could contain in the way of important elements.

Redwater field, where Imperial Oil Ltd. is the major operator, shows more promise from the volume standpoint. But it is highly doubtful that Imperial will involve itself in such a venture.

One source reports that Redwater produces about 700,000 bbl. of formation water per month, or nearly 1-million gal. daily. An Imperial spokesman notes that the water is reinjected into the formation.

an old dog can teach you new tricks!

"Dog-eared" is a term sometimes applied to gravity and magnetics as exploration tools, but these "old guard" methods of exploration can teach many of us new tricks about getting certain prospects surveyed quickly, efficiently and economically.

A number of tails began wagging after explorationists stood up on their hind legs and took a new sniff at prospects via the gravity-magnetics route. If you are interested in cutting costs, while answering specific geologic questions, give us a whistle and we'll trot out our new Bulletin GM59-1, **"Gravity-Magnetics . . . what they can and can't do for the explorationist."**

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What's New / IN EXPLORATION, DRILLING, PRODUCTION

"Palynology can be as valuable to stratigraphic geology as geophysics has been to structural geology."

This prediction was made last week by John F. Grayson, of Mobil Oil Co., before the Mid-Continent Regional meeting of the American Assn. of Petroleum Geologists, in Wichita, Kan.

Explaining how palynology, the study of spores and pollen, is a geological aid, Grayson stressed the increasing role palynology will play in the growing trend toward stratigraphic geology.

"I believe," he said, "that the search for stratigraphic traps must be done by the geologist doing stratigraphy on a much finer scale than has been necessary up to now.

"It is going to be necessary to have accurate time lines—not facies boundaries that are equated to time lines.

"Palynology is a technique that may enable the geologist to do microstratigraphy, stratigraphy on a scale never before accomplished."

At the same meeting, William M. Deaton, U.S. Bureau of Mines, urged congressional approval of the proposed helium conservation program because future scarcity could endanger national security.

He said helium isn't scarce now, but that it is being wasted.

The Interior Dept.'s helium conservation program, he said, "recognizes that the possibility of finding large new sources of helium is not promising. Thus, it is designed to conserve much of the helium now being lost in natural gas fuel markets."

•

There's a new flareup in the title dispute between the Navajo Indians and the state of Utah over certain lands in the Aneth area.

Both the Indians and the state claim the acreage, in a hassle that has gone through several court tests and on which further litigation pends.

Midwest Oil Corp. says it has successfully negotiated with the Indians for leases on four tracts of the land. A Midwest spokesman gave no further details, but added, "As far as we're concerned, we have a deal."

The agreement, however, has to be approved by the Interior Dept.

The Indians rejected bids for these tracts at a sale last June, and then last month called off a second sale a few days before the scheduled date with the announcement that they were negotiating with an "unnamed party" (PW—Oct.30'59,p27).

In a related development, Fehr & Lyon, Salt Lake City independents, have announced a seven-hole drilling program on 800 acres between the Ratherford and White Mesa areas on the south, and Aneth pool proper on the north, on state leases the Indians claim as their own.

Bids on some of the disputed land already offered for sale by the Indians now await Interior Dept. approval.

•

Oil reserves being found in North Africa are the "new great threat" to Texas producers, a Texas oil man believes.

Speaking at an oil recovery symposium in Corpus Christi last week, Harold Decker, president of Highland Oil Co., said lower well costs and higher daily producing rates for new wells must be realized if the Texas operator is to compete in the present market with Venezuela, the Near East, and Canada.

He called on the Railroad Commission to make several rule changes, including changing the statewide spacing rule from 20 acres to 40 acres.

•

Rules for what may turn out to be a huge oil field in areal extent have been proposed to the Texas Railroad Commission by Shamrock Oil & Gas Corp.

The field is Hugh Fitzsimons (San Miguel), in Dimmit County, Southwest Texas.

Shamrock told the commission that while it recommends rules providing for development on a 20-acre basis, it has so far drilled on the basis of one well to 640 acres. In this manner, the company said, it has proved up about 20,000 acres with ten producers, and estimates that another 14,000 acres are semiproved.

At the same time, Union Producing Co. announced that it has over 100,000 acres under lease in the area, and that it believes that all, or substantially all, of the acreage will be productive.

The big problem so far has been getting the oil out of the 3,400-ft. pay. Though the field was discovered

Cycling Plant in Texas to Be Expanded

This Shell Oil Co. cycling plant in Sheridan field, Colorado County, Texas Gulf Coast, will be expanded from its present throughput of 110-million cf/d to 130-million cf/d. The $1-million program will begin early next year and is scheduled to be completed by year-end. It involves construction of field-gathering lines, absorption facilities, and new refrigeration equipment.

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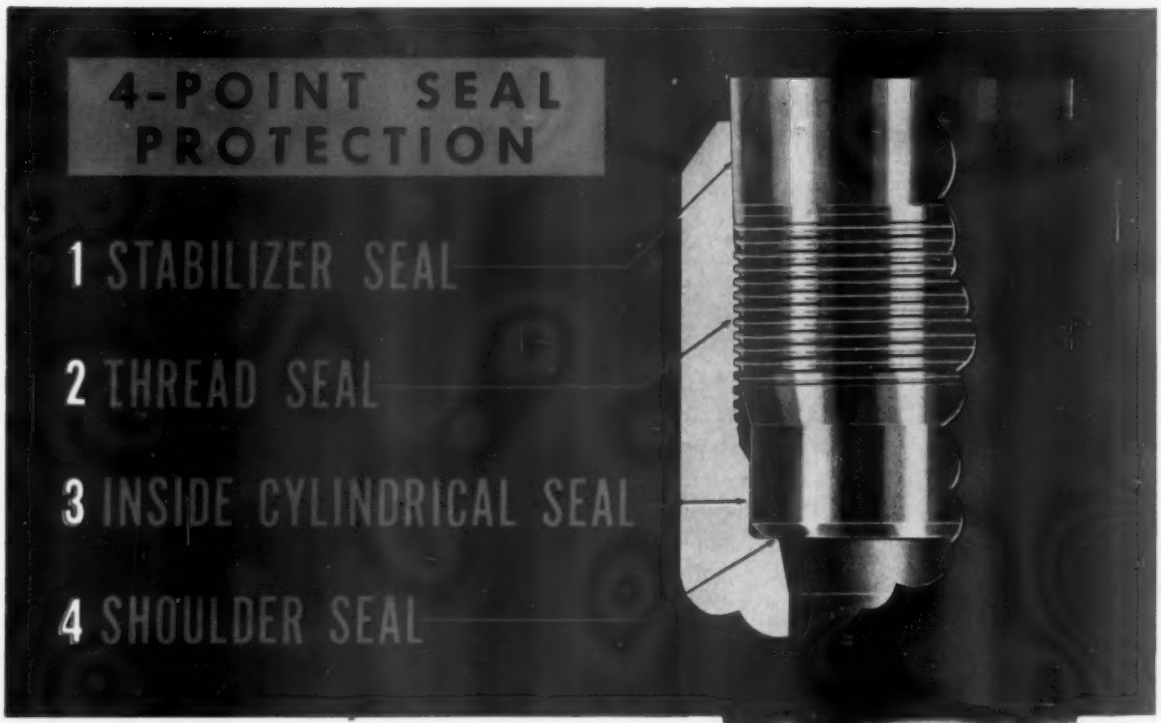

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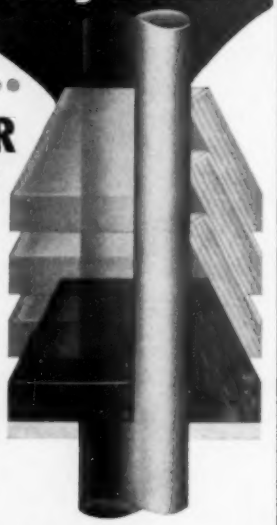

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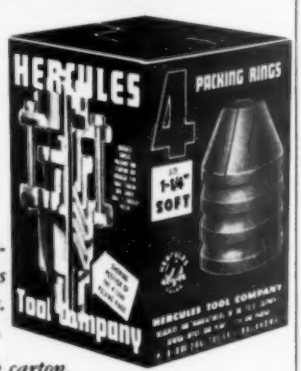

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Feb. 27, 1959, only 3,169 bbl. of oil had been produced to Oct. 1.

•

Eleven oil companies are being sued for $6-million in U.S. District Court, Wichita, Kan., for allegedly causing extensive crop damage by "dumping" petroleum waste into rivers.

The 144 plaintiffs are seeking $3-million to cover crop loss and $3-million in punitive damages. They claim that petroleum waste was carried onto their farm lands by floods in 1953 and 1957.

J. B. McKay, attorney for the oil companies, said last week when the trial opened that none of the defendants "dumped" waste into rivers, and that crop damage was caused solely by floods.

Defendants include Socony Mobil, Cities Service, and Sinclair Oil & Gas.

•

One of the biggest casing programs projected for California—if not the biggest—has been devised by Standard Oil Co. of California for a deep test in Rio Vista gas field, Solano County.

With one zone that could cause blowout problems at the relatively shallow depth of 1,200 ft., and other potentially dangerous zones in the 3,500-4,000-ft. range, and deeper, Standard has planned a pipe program to get its No. 11 Peter Cook, section 18-4n-3e, to its projected depth of 15,000 ft. This is almost 4,000 ft. deeper than an 11,051-ft. hole that up to now has been the deepest in Rio Vista, the state's largest gas field.

The first string, 20-in. pipe, has been run to 624 ft., and the next string, 13⅜-in. casing, will be run to a depth of approximately 5,000 ft. If the prospect develops as anticipated, Standard will run 8⅝-in. casing to 10,500-11,000 ft.

•

Engineering

Dowell Division of Dow Chemical Co. has developed a new safety hat that contains a two-way radio.

The radio, not much larger than a package of cigarettes, fits in the top of the hat. It has a sound-canceling microphone that makes it possible, says Dowell, to transmit effectively when the surrounding noise level is high.

Two small batteries the size of penlight cells power the radio, which has a range of 1,000 ft. The complete assembly weighs 2 lb.

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. . . Gardner-Denver supplies the boost

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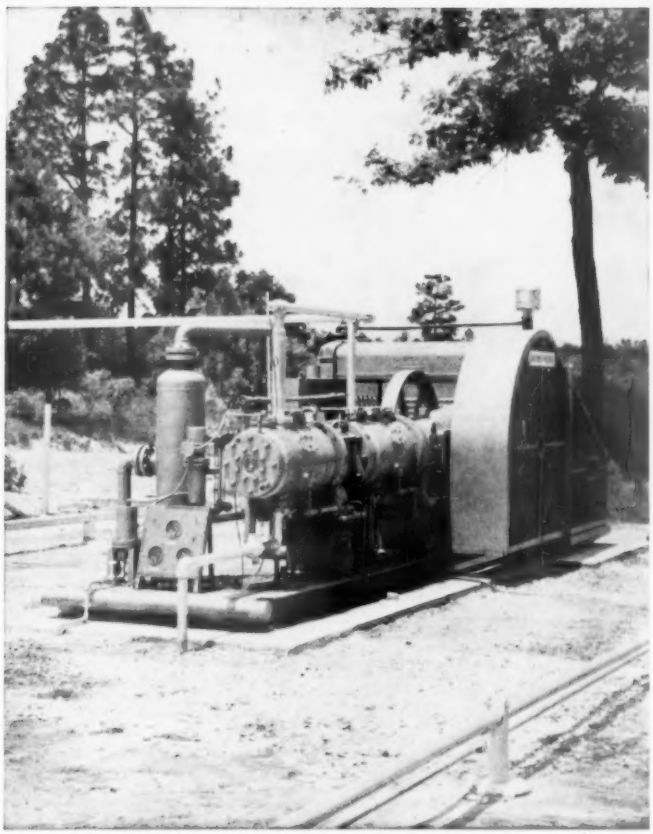

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Factory-trained specialists in Gardner-Denver plants and offices throughout the world have parts and facilities to keep our products on the go wherever they go. At Gardner-Denver there's no substitute for men—our 100-year philosophy of growth.

Gardner-Denver gas compressors are known the world over for uninterrupted service, low oil consumption and low maintenance. These sturdily built units are designed to meet specific field needs. All components—cooling system, separators, controls, etc.—are a part of the complete package. When the compressor arrives at the job site, it's skid-mounted with everything in place—ready to hook up and start work.

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Teamwork is the key to Tex-Tube's remarkable record in anticipating your needs for tubular goods. Teamwork between mill, warehouse and sales-service facilities.

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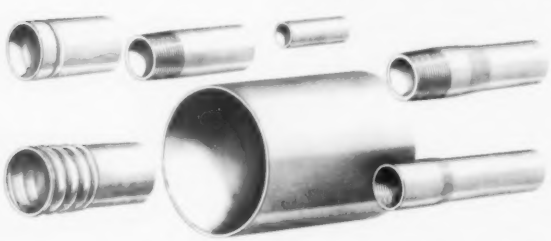
As for sales and service, Tex-Tube has earned the reputation of taking care of customers — even during shortages— and of *keeping its promises.* Fifteen years have built this reputation.

Let Tex-Tube's teamwork help *you.* You are invited to visit Tex-Tube's plant at your convenience.



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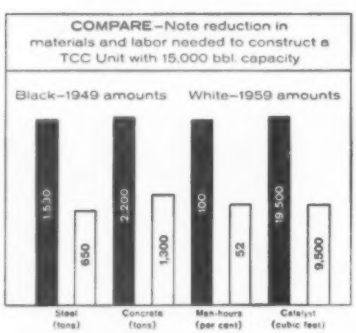
New TCC Units greatly reduce capital investment and operating costs

Since Socony Mobil developed the first Thermofor Catalytic Cracking unit during World War II, Mobil engineers have been steadily improving the basic TCC process and lowering construction costs. The figures speak for themselves—in the past ten years, steel requirements have been reduced by 57%, concrete by 40%, construction man-hours by 48%.

Not only are the new TCC units less expensive to build, operating costs are lower, thanks to Mobil's new bead catalyst, Heavy Durabead. Today's TCC yields more salable products from every barrel of crude oil.

There are many possible over-all processing procedures and cracking yield patterns for a given crude oil. Mobil is prepared to work with a TCC licensee to determine the best plan for his particular needs. Inquiries about TCC should be directed to Process Promotion Department, Socony Mobil Oil Company, Inc., 150 East 42nd Street, New York 17, N.Y.

Lower cost TCC Units . . . Another example of how Mobil research pays off by holding down the cost of gasoline.



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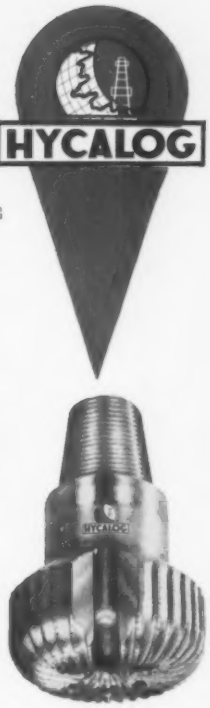

Diamond drill bits were formerly handicapped in duration of runs . . . *and rate of penetration* . . . by their inability to dispose of cores formed at their centers.

In shales and other soft formations, the core twisted off and rotated with the bit.

In hard sands the core crushed the center diamonds, preventing further drilling.

BUT HYCALOG'S ENGINEERS have turned these handicaps into an advantage. Now, the V-DOOR bit, developed by HYCALOG, utilizes *controlled failing* of cores to achieve a faster rate of penetration . . . *and longer life.* HERE'S HOW:

The diamond surfaced center hole purposely cuts a cylindrical core. Valve action of core against bit reduces escape of fluid through the V-DOOR . . . forces it over the cutting surfaces keeping them thoroughly flushed.

Combination of bit design and hydraulic pressure breaks core into short segments. Then valve action is momentarily interrupted; high pressure fluid is released with a surge into V-DOOR port, forcing core fragments into discharge port.

Core fragments are flushed out of hole. With every revolution, the V-DOOR port sweeps bottom of the hole removing loose small particles, and eliminating necessity of regrinding.

Ask your HYCALOG rep to show you some performance records on the V-DOOR. He has a stack of them. *And also get the facts on* HYCALOG *well logging.*

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Drilling Highlights

British Columbia—Union Oil Co. of California No. B-42L Aiken Creek, recovered an estimated 40 bbl. of 39-gravity oil on drillstem test of the Gething at 4,375-425 ft. The prospect also flowed gas at the rate of 1-million cf/d. The wildcat is 10 mi. northeast of Blueberry gas field. The operator will carry the prospect to below 4,800 ft. in the Triassic.

North Texas—Diversa, Inc., and Hal C. Newman No. 1 Lilly D. Martin, section 3114, TE&L survey, Baylor County, was dually completed for 175 b/d of 41.5-gravity oil through 14/64-in. choke and perforations at 4,882-92 ft. in the Caddo, and 144 b/d of 42.8-gravity oil through 16/64-in. choke and perforations at 5,324-64 ft. in the Mississippian. The discovery is 2 mi. northwest of East Westover field.

Utah—Kingwood Oil Co. No. 1 Unit, section 28-40s-20e, San Juan County, flowed 1,450,000 cf/d of gas from perforated zones between 1,214-500 ft. in the Paradox (Pennsylvanian). The discovery, in the Lime Ridge area, is 12 mi. west of Bluff Bench, and a little more than that northeast of Mexican Hat.

West Texas—Texaco Inc. No. 1-DC State, section 3, block 18, University land, Ward County, was completed as a gas-distillate discovery, flowing 13,200,000 cf/d of gas and 24 b/d of 65-gravity condensate through perforations at 4,972-96 ft. in the Delaware. The discovery is ½ mi. north of oil production from the same formation in Block 18 pool, and is 2½ mi. southwest of the nearest Delaware gas-distillate producer, in Block 17 sector.

Colorado—Union Oil Co. of California No. 1 Buzzard Creek, section 12-9s-93w, Mesa County, flowed 4,200,000 cf/d through perforations at 8,562-66 ft. in the Cozzette, a transition zone from the Mancos to the Mesaverde proper. The well is 1½ mi. west of Sheep Creek field.

Wyoming—Texas National Petroleum Co. No. 1 Govt.-Withers, section 32-20n-99w, Sweetwater County, flowed 256 b/d through ¼-in. choke and perforations in four zones between 3,556-616 ft. in the Almond member of the Mesaverde. The discovery lies in a 6-mi. gap between gas production at West Desert Springs to the north and the Arch Unit to the south.

"The industry will have to live with excess capacity pretty much around the world for the next several years."

M. J. Rathbone
President
Standard Oil Co. (New Jersey)

"Crude is only worth what it will fetch at the station pump."

H. S. M. Burns
President
Shell Oil Co.

"Time was in Standard Oil — as in many other companies — when marketing took a back seat to other phases of the business. Now the marketing concept, which sees marketing as a combination of science and art, has become the focal point of orientation."

Dwight Benton
Vice President of Sales
Standard Oil Co. (Indiana)

Today's worldwide oil surplus is throwing the spotlight on . . . MARKETING—

The big trend in the petroleum industry today is the emergence of marketing as the key operation. Reason: Far more oil is for sale than customers need to buy. Therefore, the company that can keep its product moving is the one that can best keep its stockholders happy.

This trend has been apparent for several years. But some managements only half-believed it, feeling that a new "crisis" of some kind would occur, to eat up oil surpluses once again. But this hasn't materialized, and now time is running out. The company that fails to line up assured outlets for enough of its oil will be in trouble.

The companies surveyed by PETROLEUM WEEK from coast to coast are almost unanimous in reporting increased attention to marketing.

"Crude," says Shell Oil Co.'s president, H. S. M. Burns, is only worth what it will fetch at the station pump. Nobody is going to pay $3 per bbl. for crude for very long if the netback from the service stations is $2.99 or less."

Observes George F. Getty II, president of Tidewater Oil Co., "During the last few years we have seen the American oil industry cope with a major historical adjustment. Highly successful in their search for oil in the last decade, oil men are now turning their attention to building markets to match this supply."

Comments Dwight F. Benton, vice-president of sales for Indiana Standard, "Time was in Standard Oil—as in many other companies—when marketing took a back seat to other phases of the business. Now the marketing concept, which sees marketing as a combination of science and art, has become the focal point of orientation . . . We've had a higher-production-and-greater-throughput complex in the industry for years. 'Look at us,' we've said. 'We got another so-many-hundred-million barrels of crude out of the ground this year and sent it joyfully through the refineries. Isn't that magnificent?'

"Now we have to rid ourselves of that complex and move to a modern concept—the marketing concept that sees all industrial activity, including oil activity, in terms of the one thing that really counts—the profitable sale to a customer."

The trend is at least as pronounced overseas as in the U.S.

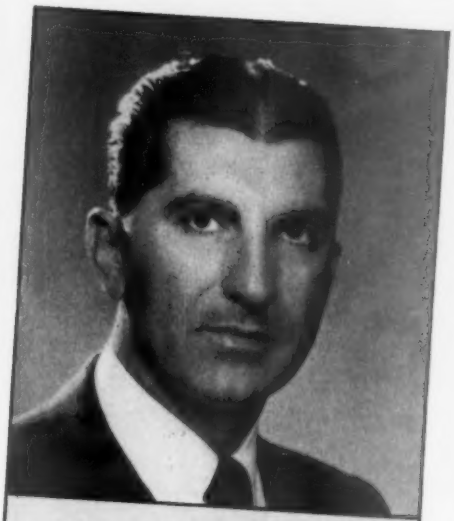
"For some years after the war," recalls Burton C. Fowler, manager of Mobil International Oil Co.'s marketing department, "the oil industry and my company were concerned with filling the fast-growing worldwide demand for fuels and lubricants. Our capital expenditures and

"The coming year will be a little better if restraint is shown in production. Finished products are close to the 'peril point' in the market. As products are adversely affected, it is only a matter of time until crude is adversely affected."

Gen. Ernest O. Thompson
Chairman
Texas Railroad Commission

"Oil salesmen have been too willing to fight for a bigger piece of the available pie, without thinking that maybe a bigger pie could be made."

James E. Dyer
Vice Chairman of the Board
Sinclair Oil Corp.



"There are damned few real wildcatters left now. I'm going to keep wildcatting as long as I can, but I don't know how long that will be."

Michel T. Halbouty
Independent Producer
Houston

Now You Need It to Stay Alive

management attention were concentrated on producing crude, rebuilding refineries, erecting terminals, and securing other facilities to get the product moving to market. We ran hard to keep up with growing demand. In recent years, with much of the original task completed, there has been a shift in emphasis to more aggressive marketing."

Adds John W. Daker, assistant vice-president, marketing department, Standard Oil Co. (Ohio), "Top management of the integrated companies traditionally have been production and refinery people. But with the rapid growth of crude supplies and refinery capacity during and following World War II, there has been a sharper focus on 'ownership of the market,' and a growing realization that the one who has the customer on his books is in the most favorable position."

"There's been quite a change in the last year or two in the status of marketing people," reports a West Coast industry observer. "They've got a lot more stature now than they used to have in the days when everybody knew the oil industry turned on exploration and production men."

"Our production, refining, and transportation men used to ignore me," says a major company sales manager in the Southwest. "Now they call up and ask about my health, chat a while, and then ask, 'How did you do last month?' It's kind of good to hear that for a change."

"What's happened to the marketing men," says one of them, "reminds me of the midwestern college where the profs in the agriculture department were the elite

continued ▸

44 Oil Men Talking

In all, 44 oil executives from all segments of the industry contributed to this report. They represent the production, refining, transportation, and marketing departments, as well as top management, of large and small oil companies. Included are ten oil economists. Together, the 44 men have a broad familiarity with industry conditions in the U.S. and in every foreign area.

How Excess Crude Capacity Has Grown

(Thousands of barrels per day)

AREA	DEMAND 1948	DEMAND 1958	PRODUCTION 1948	PRODUCTION 1958	EXCESS CAPACITY 1948	EXCESS CAPACITY 1958
U.S. & Canada	6,070	9,830	5,955	7,970	85	3,560
Other Western Hemisphere	745	1,475	1,740	3,365	25	805
Europe & Africa	1,220	3,775	75	375	2	18
Middle & Far East	600	1,700	1,290	4,755	125	905
Total Free World	**8,635**	**16,780**	**9,060**	**16,465**	237	5,288

SOURCE: Standard Oil Co. (New Jersey).

corps, raised big families, and served as spokesmen for everything, while the lone prof in the physics department was insignificant, and childless. Then the U.S. dropped the atom bomb, and the situation changed. The physics prof spoke at all the meetings—and his wife had twins."

What are the factors causing the oppressive oil oversupply? A good case can be made for the view that the industry "ran out of crises."

Indiana Standard's Benton elaborates, "In 1945 it was thought there would be a terrific drop in demand with the transition from wartime to peacetime activity. Instead we found the abrupt release of pent-up civilian demand almost more than we could handle. In 1950 our markets were weakening seriously. The North Koreans crossed the 49th parallel . . . and war petroleum demand climbed. In 1956 we were in serious trouble as a result of the cost-price squeeze. Nasser seized the Suez, and we were back trying to catch up with soaring demand again. We were bound to run out of miracles some time. My guess is that that time is now."

The competitive pressure is coming largely from the more than 5-million b/d of shut-in crude producing capacity throughout the free world (table, above). Texas allowables, for example, are still being held at only nine producing days a month.

Says K. H. Shaffer, president of Standard Oil Co. of Texas, "All the countries of the world that have sedimentary basins and have had to buy oil are interested in finding oil within their own boundaries, and they have been finding it."

Adds M. A. Wright, director of Standard Oil Co. (N. J.), "In 1952, 72 U.S. companies were exploring for oil abroad. Today there are more than 150. Newcomers to Venezuela alone have developed a producing potential on the order of 250,000 b/d, which they are actively seeking to market."

Wright's review of the overseas supply build-up includes these points:

- Argentina may approach self-sufficiency in oil within a few years under its active exploration and development program. More than 3,500 wells will be drilled.
- Half a dozen major oil fields have been discovered in Algeria since 1956, and 40 rigs are now active. By 1961 Algeria will be producing 440,000 b/d, and by 1965 this will swell to 1-million b/d.
- Recent oil discoveries in Libya promise a major new oil source. Some 18 foreign companies have taken 250-million acres of concessions.
- Recent new concessions in Iran and the Neutral Zone, taken by Italian, Japanese, Canadian, and American companies, may result in sizable new finds.
- Communist-bloc oil may be a further disrupting influence in the future. Last year, 211,000 b/d of Communist oil reached free world markets. By 1965 this flow could reach 500,000 b/d.

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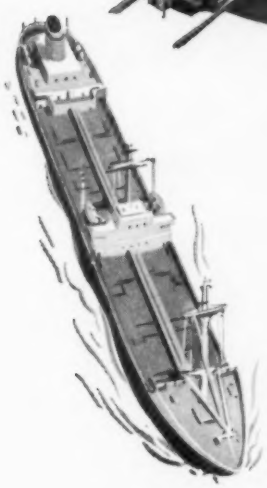
"In 1952, 72 U.S. companies were exploring for oil abroad. Today there are more than 150."

M. A. Wright
Director
Standard Oil Co. (N. J.)



From well to "sell"...

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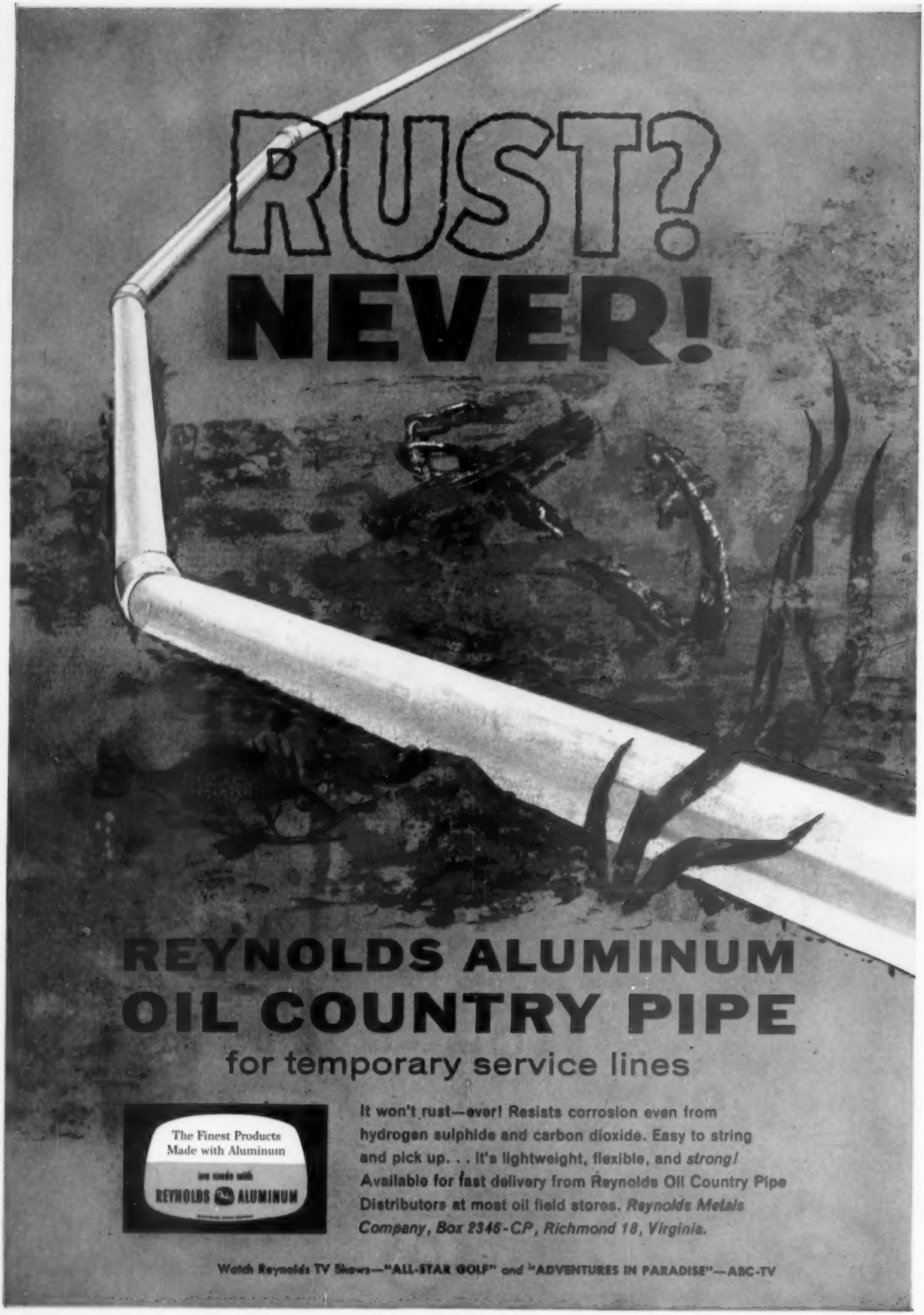

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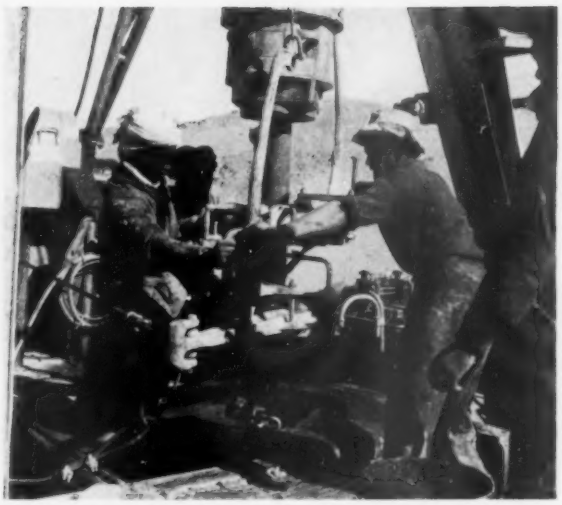
Watch Reynolds TV Shows—"ALL-STAR GOLF" and "ADVENTURES IN PARADISE"—ABC-TV



SAHARA CRUDE from big Hassi Messaoud field will soon start to world markets through completed pipeline to Mediterranean.

Says an international oil veteran, "There are all sorts of new pressures that terrify you. If Japan finds oil in the Middle East, and if nationalism prevails, the new reserves may supply all of Japan. Certainly they will supply the Japanese oil companies. What hurts is the way the Japanese and Italians can compete by hiring experienced U.S. drilling contractors."

Some independent producers already have their backs to the wall.

"Oil is all over the world," says Houston independent Michel T. Halbouty, "yet we are trying to produce the same amount we always did, and it doesn't have the same places to go. There are damned few real wildcatters left now. I'm going to keep wildcatting as long as I can, but I don't know how long that will be. Let's face it. Either there is going to be some sort of drastic change in the oil industry in the next few years, or there won't be any independents left."

Excess U.S. refining capacity is tending to create further oversupply and, consequently, added stress on marketing. Robert O. Law, manager of market research and planning for DX Sunray Oil Co., reviews the causes this way:

"The growing difficulty in the management of excessive product inventories reflects in part the federal government's policy of maintaining excessive refining capacity in the interest of national defense, and in part a rapidly expanding technology. The present glut of refined products can be traced to the governmental policy, established shortly after World War II, of encouraging excess refining capacity by tax provisions allowing for accelerated depreciation of equipment. This policy had its desired effect in that expansion of refining facilities was made very attractive economically.

"Refiners today are in very much the same position in regard to their excess capacity (totaling roughly 1-million b/d in the U.S.). If they cut back output below its most efficient level on a unit cost basis, their product costs tend to rise significantly. At the same time, the glut of products remaining on the market from refiners who have not cut back tends to lower prices. The resultant squeeze reduces the profit margin to a very fine line, and can only result in an ailing industry."

Surplus refinery capacity abroad is also creating difficult competition.

"Consuming nations," says Jersey Standard's president, M. J. Rathbone, "have encouraged—and many have insisted upon—the construction of new refineries within their borders. This has been partly for currency exchange reasons and partly for considerations of national security and national pride. Several of these new refineries simply duplicated existing facilities elsewhere.

The surplus capacity would not be so troublesome if oil demand had held to its strong upward curve. In the decade 1946-1956, free-world consumption grew at an annual average rate of 8%. But for the next few years at least, the rate will be closer to 5%. Here's how Jersey Standard estimates the breakdown of the average annual growth in demand:

	1946-1956	Next Few Years
United States	+ 6%	+3½%
Foreign Free World	+12%	+6½%
Total Free World	+ 8%	+5 %

Standard of Indiana is predicting a U.S. increase of "about 3%" for the next five to ten years. Shell Oil sees a growth of 3% or 4% for the years just ahead.

Jersey Standard lists the following explanations for the

continued ▸

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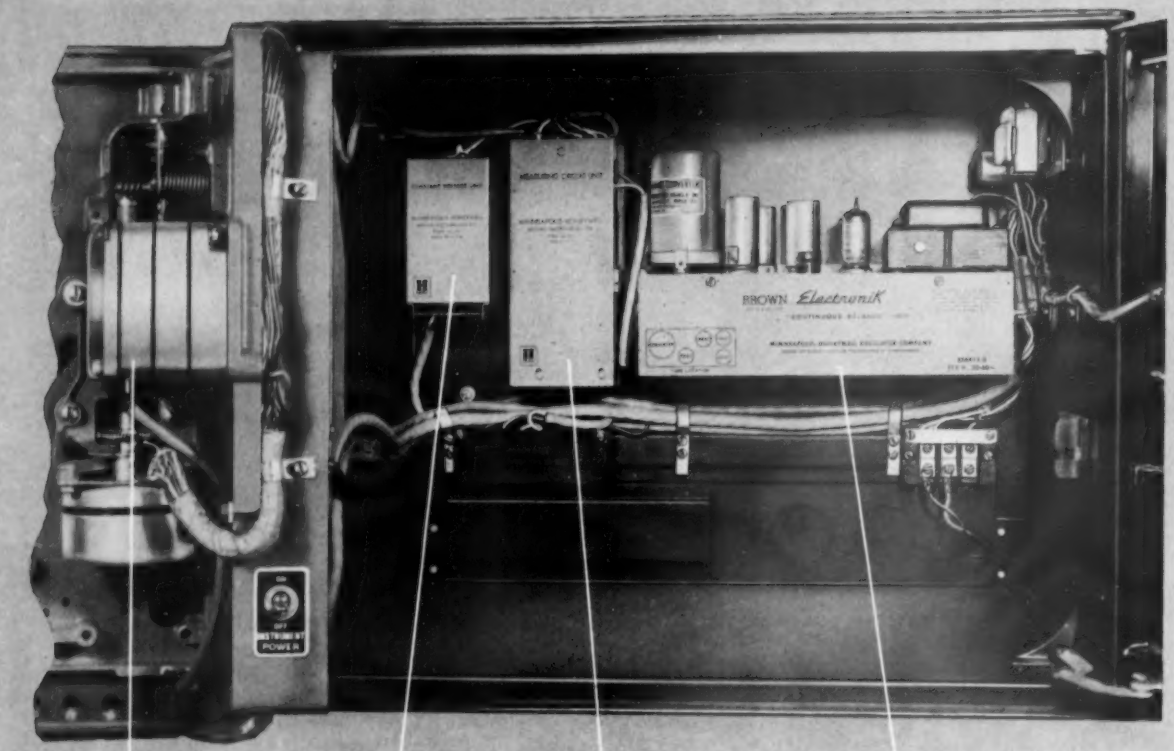
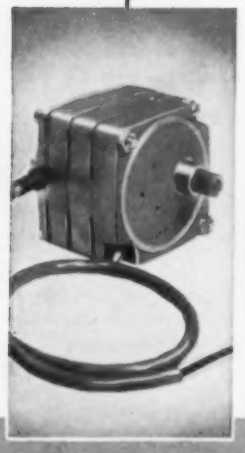
Wanted: Sales Knowhow

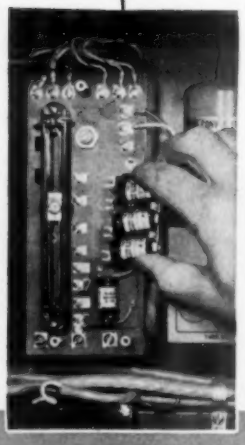
A sign of the times, as oil companies battle for favorable marketing positions, is this ad that appeared in the New York Times last month. It asks for a man with "wide knowledge of foreign crude and products markets."



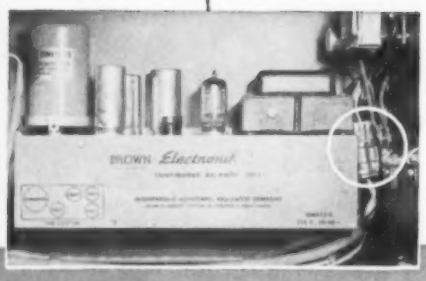


Servo Motor has sectional housing, leakproof oil wick, printed circuits for simplified servicing. Any major part can be replaced in 2 minutes.

Constant Voltage Module—Uses Zener diodes and an ambient temperature compensator to replace standardizing mechanism.



Measuring Circuit Module—Contains easily-changed range spool panels and vernier adjustment. Range is changed simply by replacing screw-clip panels of fixed resistors.



Amplifier Module—Quick-connect design permits fast, easy removal for servicing and replacement. Circle shows quick connect plug.

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New modular design...

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Now, four great new features add new operating and servicing ease to all *ElectroniK* circular and strip chart potentiometers.

- **New servo and chart drive motors are sectionalized so that any major part can be replaced in two minutes.**
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Now, modular design is combined with the traditional precision of *ElectroniK* potentiometers, to give you a greater value than ever in accurate, dependable measurement and control.

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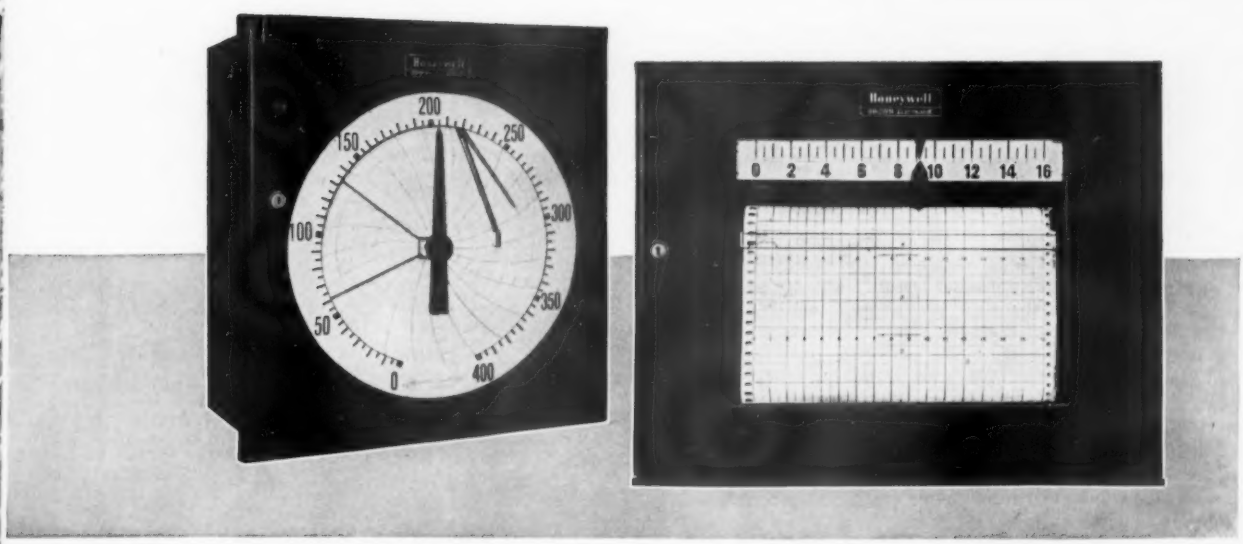

This Won't Work Any More

"It should have been borne in on everyone by now, though unfortunately it hasn't, that the ancient, simple-minded trick of short-sighted price-cutting has lost all its effectiveness. The thing sounds so easy—cut the price to build the volume, and you'll flourish. Instead of selling 100 gallons with a 5¢ margin, sell 1,000 gallons with a 1¢ margin, and double your earnings. But the price-war dodge is always self-defeating, because the competition has to defend itself, and the upshot eventually is a dead loss for everybody.

"Marketing from here in, within the context of the unprecedented marketing revolution that is upon us, will have to score dazzling successes through a variety of new merchandising and management techniques."

DWIGHT F. BENTON
Vice-president of Sales
Standard Oil Co. (Ind.)

demand slowdown: (1) More intense competition from other fuels, particularly natural gas; (2) a slowing of the surge in oil use that accompanied the rebuilding of war-devastated Europe; (3) completion of domestic conversion from coal to oil, primarily in the fields of home-heating and public transportation; (4) a tapering-off of the record postwar expansion in automobile ownership; and (5) improved efficiencies in oil use.

Products feeling the greatest pressure for new marketing outlets are gasoline and fuel oil. Sohio's John Daker points to gasoline "because it has the greatest return per unit; it is 50% of the barrel."

Socony Mobil's economics department names gasoline and home-heating oils in the U.S., and gasoline and heavy fuel oil abroad.

What really hurts is the price-cutting that results from the surpluses. Wholesale product prices, for example, have declined 10% in the past two years, according to the U.S. Bureau of Labor Statistics. This is in contrast to a 2% rise in those two years in the wholesale price index for all commodities other than food and farm products.

Since the 1947-49 base period, the Independent Petroleum Assn. of America reports, the prices of items affecting the cost of finding, developing, and producing crude have increased as much as 100% on the Bureau of Labor Statistics scale—while prices received for crude and products have had a net rise of only 15%.

Gasoline price wars continue to plague management. "Just as too many refiners have been dedicated to the practice of oversupply," says Indiana Standard's Benton, "so too many distributors have been dedicated to the practice of overslash. Blind to the data of strict cost accounting, they have kidded themselves that the slashing of prices is just good clean fun and very smart business. It's neither. It does no good to sell 100 gallons rather than 99 if in order to move that 100th gallon you batter price down to the level at which the total sale is unprofitable. Greed for the extra gallon of sales is killing us all."

The present oversupply period is a private-brand price-cutter's paradise. Says a Southwest sales manager for a big major, "Those fellows get supplies from any place they can. They shift around among refiners looking for bargains. In this area, particularly, there are so many refiners that they can find what they want.

"Right now, these private brands control 30% to 35% of the retail business. The major no longer runs marketing. Now it is run by the fly-by-night fellow with nothing in his mind for the betterment of the industry or of the consumer's position. All he is after is the opening of a new outlet and selling gasoline at the cheapest price he can get."

Although most oil men surveyed feel their predictions are little more than a guess, the consensus is that the present rough oversupply period will last another three to five years. Sample comment on how long supplies will be loose:

- Tidewater Oil Co.—"Five years minimum on a worldwide basis."
- Socony Mobil Oil Co.—"Many years."
- Standard Oil Co. (New Jersey)—"The industry will have to live with excess capacity pretty much around the world for the next several years."
- Midwest major—"Five years."
- Independent producer Michel T. Halbouty—"By 1964 it should clear up."
- West Coast major—"Up to five years; it's a grim prospect."
- Southwest major—"A couple to three years. Certainly it's something that isn't going to be solved this year."

Adds an international oil veteran in New York, "I don't think anyone can say how long this will last—two, four, six, or eight years. There are too many 'ifs.' Will concession terms be changed by local governments? Will there be a new worldwide crisis? What success will governments and companies have in finding oil? How will world demand fluctuate? No one has the answers to those questions."

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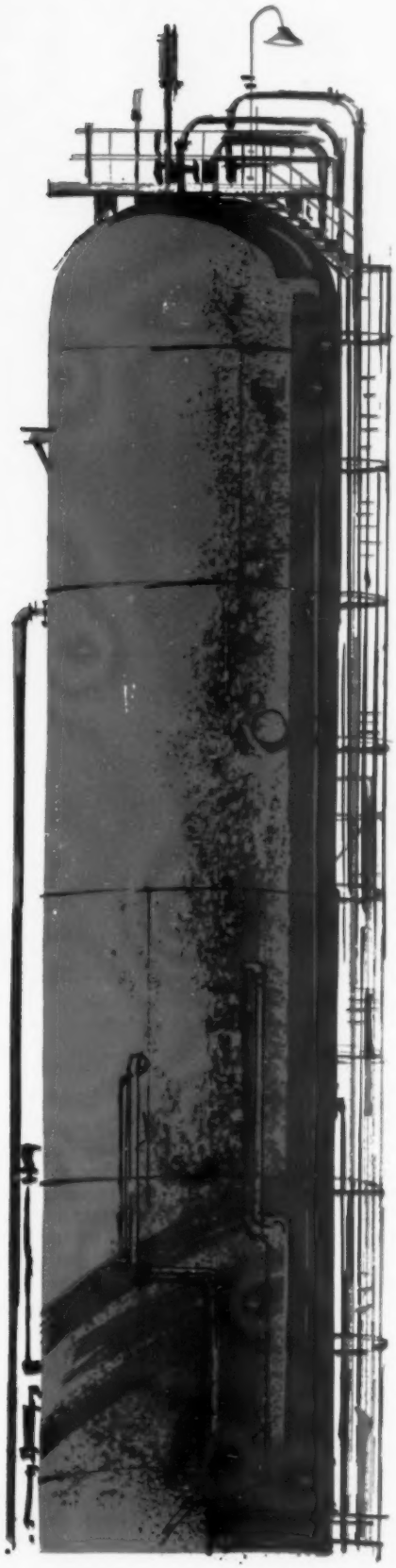
"We now predict an annual growth rate for U.S. oil demand of 3% or 4% —down from our former projection of 5% or 6%."

MONROE E. SPAGHT
Executive Vice-president
Shell Oil Co.



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"I certainly hope the independent producer is never put in the position of having to make long-term sales agreements — and I see no immediate prospect of the independent merging with refiner-marketers."

J. S. Woodward
Independent Producer
Dallas

"In a continuing efficiency campaign, my company last year reduced employment by 3,600 — or a little under 8%. There seems to be a trend in this direction in the oil industry."

Frank O. Prior
Chairman of the Board
Standard Oil Co. (Indiana)

"We should depend more on ourselves than we have in the past to find new uses for oil, and recognize that this is no easy task."

W. J. Sweeney
Vice President
Esso Research & Engineering Co.

What oil men are doing about the loose supply

Scramble Is on for Assured Outlets

To meet the oversupply challenge, management is putting its big effort into trying to line up firm deals to market more oil. For many of the "newcomers" to foreign oil, this is more easily said than done.

The established foreign marketers are resisting grimly. They might have been willing to "move over" to make room if the newcomers had only a small amount of oil to sell. But the potential foreign crude volume of the latter firms—primarily U.S. majors that began emphasizing overseas exploration after the war, plus a few big independent producers—is so vast that the big international marketers foresee the danger that they may be crowded out of the marketplace.

As a result, the established marketers are generally "meeting the price" of the newcomers. In addition, foreign governments and financial circles, mainly for tax and investment reasons, have a great interest in seeing that oil market stability is not upset by disrupting competitive forces. They have been making it difficult for the newcomers to get licenses or financing abroad.

A frantic note is creeping into some of the negotiations —for example, in the case of recent oil-company arrivals in the Venezuelan oil fields, firms that have found good production, but few customers. With U.S. import quotas virtually shutting the door in their faces, these companies have been looking anywhere and everywhere for markets. They are finding it very difficult to compete against Middle East oil in Europe, and the prospect of additional competition from the Sahara and Libya is no joking matter.

Some of the deals made by the Venezuela newcomers had such cut-price provisions that the Venezuelan government clamped down, to preserve the country's price structure.

Various refinery proposals are being made in Central American countries with the aim of providing crude outlets for the Venezuelan independents. Included are plans for El Salvador, Nicaragua, and Panama. This is despite

continued ▸

New 15,000 psi tester includes automatic equipment for blowing out scale and dirt, stenciling, screwing on couplings, delivering pipe to tester, weighing after testing, screwing on thread protectors and spraying each length with oil.

SPANG's new pipe tester is unique

THE NATIONAL NSCO SUPPLY COMPANY

You can't produce the best quality tubular goods with ordinary facilities. So you obtain the best facilities available—even if, in some cases, the equipment is unique.

This new hydrostatic tester is such a facility. Added in our Ambridge, Pa. plant early this year, it's the only line production machine of its kind designed for a 15,000 psi pressure. It handles pipe up to 5½ in. O.D. and up to 48 ft. long, including plain end, threaded, coupled and upset pipe.

Modern facilities like this new tester insure the quality you always expect and get in Spang Tubular Products.

More on the next page—

STRIKE

Three points to remember when you buy drill pipe

1. A SPANG drilling string is a fully integrated string

National Supply is the only company in the industry manufacturing both the drill pipe and the tool joints. From this *single* responsible source, you get a string that has carefully controlled quality from start to finish.

2. SPANG leads in tool joint design—the critical area of pipe service life

Spangweld Tool Joints are welded to the drill pipe by an automatically controlled operation insuring accurate alignment and a high quality weld. The welding permits a streamlined contour and a reduced number of threaded elements. This tool joint connection also allows the smallest practical O.D. and maximum bore—a definite advantage for slim hole drilling.

Spang Double Seal Shrink Thread Tool Joints can be easily removed and replaced in the field. Joint design has an outer seal, threads and inner seal all on a single cone. This insures uniform, reliable installations both at the mill and in the field, and completely seals against internal and external pressures.

3. SPANG provides the best selective protection against corrosion and abrasion

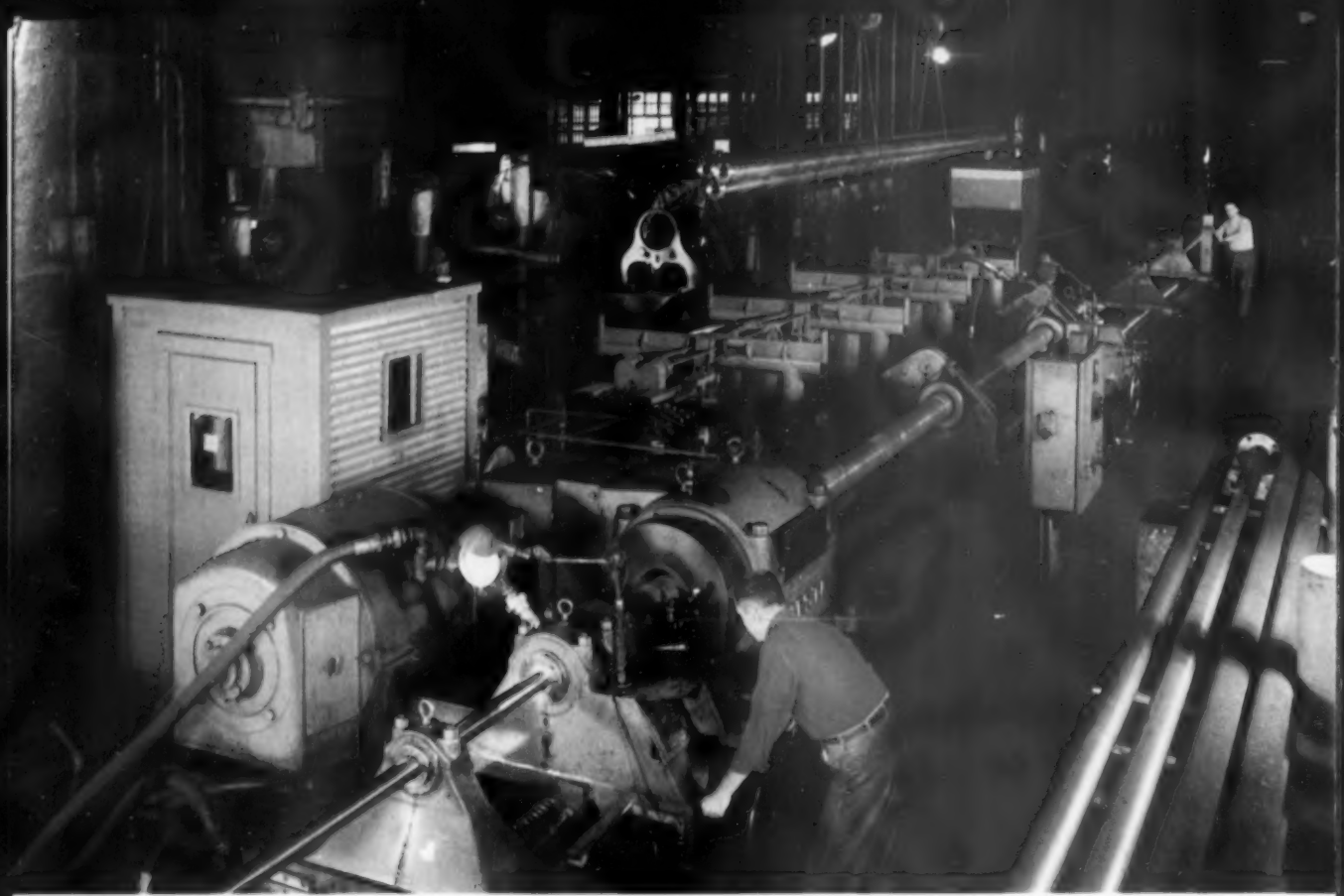
Spang Plastic Coating—the result of ten years of research—gives the best protection against corrosion. Scientifically applied at the mill on specially-developed facilities, Spang Plastic Coating is available not only in Spang Drill Pipe but also Spang Casing, Tubing and Line Pipe.

Spang Hardfacing is a superior protection for tool joints in abrasive formations. It consists of multiple bands of tungsten carbide, *continuously* overlapped on the joint to form a solid particle-to-metal band.

Specific proof of these benefits is furnished every day in numerous locations throughout the world. The National representative in your area will be pleased to tell you more.

A National plant inspector checks the destination of an order of hardfaced Spangweld Drill Pipe. Spang Hardfacing consists of multiple bands of tungsten carbide, continuously overlapped on the joint to form a solid particle-to-metal band.

National Drill Collars on the next page . . .



National Drill Collars are simultaneously bored from both ends on this 165-ft. trepanning lathe designed especially for this purpose. The lathe's speed and accuracy obsolete the ordinary type of solid bar drilling.

Use precision-made National Collars for best penetration rates!

Are you looking for ways to improve penetration rates at all drilling speeds, and extend the life of your drill string? Specify National Drill Collars and you'll see new results because of these features:

High strength properties—National Collars are made from alloy steel, hardened and tempered *full length* (not just ends only) for high strength. As an additional safeguard against fatigue failure, National "Tuf-Flexes" its drill collar joints by cold-rolling or peening.

True center bores—These are established by a special 165-ft. trepanning lathe which precisely bores both ends of the collar simultaneously. All bores are carefully surveyed for concentricity to insure proper balance while rotating at normal and high drilling speeds.

Stress relief grooving—To improve the fatigue resistance of drill collar joints, National machines a stress relief groove at the last engaged thread zone of both box and pin members. The pin relief groove is designed to protect the shoulder corner as well as the stress concentrating zone at the last engaged thread.

Along with performace records, features like these are proof that you can't buy a better drill collar than National's. So get the best—and the operating benefits that go with it. See a National representative about the drill collar sizes to meet your needs. He can also give you some valuable tips on collar care and handling.

Replaceable End Collars

National also manufactures a complete line of drill collars with replaceable ends—incorporating a modification of the time-tested double seal shrink thread principle—for use in isolated areas where field shop facilities may not be available.

THE NATIONAL SUPPLY COMPANY

Subsidiary of Armco Steel Corporation

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Printed in U.S.A.

"Responsibility rests with top management of large companies to use some judgment on production of crude. Excess production can wreck the independent or nonintegrated companies."

L. R. KAMPERMAN
Vice-President, Marketing
Leonard Refineries, Inc.

substantial export refining capacity in the Caribbean area—in the Netherlands West Indies, Trinidad, and Cuba.

The upshot of the proposals for these independent refineries is that the long-established international majors who market in the Caribbean and Central America are being virtually forced to make refinery proposals of their own—no matter how uneconomic—if they want to retain their markets.

In the Eastern Hemisphere the long-standing trend toward building refineries in consumption centers is being accelerated as oil companies vie for markets. By now, there are very few countries in the world for which refineries are not either operating, proposed, or definitely planned. In some places, competition for the refinery rights is cutthroat.

In Sudan, Italy's Ente Nazionale Idrocarburi (ENI) has made a bid for a local refinery as a means of getting into the Sudanese market (in which majors such as Shell, Caltex, British Petroleum, and Stanvac are the long-established marketers). Shell and BP have now put in a joint competing bid to build the refinery (following their recent deal for a refinery in Kenya). These refineries would be the first in East Africa.

In planning investment in foreign countries that are feeling the rising tides of nationalism, oil management is thinking in terms of shorter-term arrangements than are normally favored.

An example is Thailand, where the established marketers have had joint or separate refinery bids in for several years. Recently Indiana Standard—aggressively seeking markets for the foreign crude it expects to develop in its reentry into the international oil scene—moved in with an unusual offer, which the government has accepted in principle. This was to build a 25,000 b/d plant and turn it over to the government after 10 years. (Standard is now negotiating to extend this to 20 years.) In return, the company would get a monopoly on crude imports and refining, plus another five-year exclusive right to supply crude for the refinery.

In part, the proposal reflects the philosophy in some oil-company board rooms that, in politically volatile areas, the best approach is to allow yourself no more than 10 to 15 years to recover your investment.

The competition for markets is most intense in Europe, well-developed as the oil industry is there. A highly significant factor is the Common Market organization, which is causing oil companies to plan refineries in entirely new refining areas, especially inland areas of the Common Market community. The projected new $100-million Mediterranean-Rhine crude oil pipeline (PW—Oct.23 '59,p46) will feed some of the new plants with crude from the Sahara, Libya, and the Middle East. The line is scheduled to start operation in January, 1963.

In the U.S., the buildup in refining and marketing acquisitions over the past three years (table, page 73) shows how seriously oil companies are taking the need to make sure of their markets.

Typical of the way in which many of the mergers benefit both companies was the acquisition of Aurora Gasoline Co. by Ohio Oil Co. this summer. Aurora operates refineries at Detroit, Muskegon, and Elsie, Mich., with capacities totaling 65,000 b/d. The company's Speedway-brand gasolines have wide acceptance through most of Michigan.

Ohio Oil has been on the lookout since 1952 for a chance to increase its marketing and refining operations, which were equal to only 40% of the company's crude production. Aurora had been an Ohio Oil customer for 20 years. Ohio knew the operation, the management, and Aurora's profit-making history.

continued ▸

"The producer is becoming more and more dependent on the refiner, and indeed he must eventually think perhaps in terms of providing his own market."

LARRY SEAMAN
President
Intex Oil Co.

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The Rush for Markets at Home

To expand their marketing and refining outlets in the U.S. . . .

These **larger firms** acquired or merged with these **smaller firms***

In 1959

Atlantic Refining Co.	Major Petroleum, Philadelphia
Bay Petroleum	Gulf Coast Oil, New Orleans
	Independent Oil terminal, Lynn Haven, Fla.
Colorado Gas & Oil Corp.	Ames Oil Co., Great Bend, Kan.
Continental Oil Co.	Coastal Oil, Newark, N. J.
	International Refineries and Western Oil & Fuel, Minneapolis
	F. P. Kendall Co., Chattanooga
	Malco Refining (plant leased at Artesia, N. M.)
	San Jacinto Petroleum, Houston
DX Sunray Oil Co.	Tidewater Oil Co. Central Division, Tulsa
Esso Standard Oil Co.	General Automatic, Baltimore
	Smedley & Mehl, Ardmore, Pa.
Hartol Petroleum	Crown Petroleum, Hartford, Conn.
Hess Trading	Interest in Meadville Corp, Philadelphia
Humble Oil & Refining Co.	Five-Star Petroleum, Phoenix, Ariz.
	Sahuaro Petroleum, Phoenix, Ariz.
Ohio Oil Co.	Aurora Gasoline, Detroit
Pauley Petroleum	Newhall Refining, Newhall, Calif.
Phillips Petroleum Co.	Jackson 66, Jackson, Miss.
Pure Oil Co.	Wisconsin Independent Oil Co., Milwaukee
Signal Oil & Gas	Bankline Oil, Los Angeles
	Eastern States Petroleum & Chemical Corp., Houston
	Hancock Oil, Long Beach, Calif.
Sinclair Refining Co.	Economy Service, Newark, N.J.
Standard Oil Co. (Ind.)	True's Oil Co., Spokane
Standard Oil Co. (N.J.)	Globe Fuel Products, Chicago
Standard Oil Co. (Ohio)	Leonard Refineries, Inc., Alma, Mich.
Sunray Mid-Continent	Suntide Refining, Corpus Christi
Texaco Inc.	Experiment, Inc., Richmond, Va.
	Paragon Oil, Long Island City, N. Y.
	Seaboard Oil, Dallas

*In a few cases the acquisitions are still being negotiated.

These **larger firms** acquired or merged with these **smaller firms***

Tidewater Oil Co.	Delta Oil, Petersburg, Va.
	George W. Hall, Brewster, N. Y.
	F. D. Koehler Co., Staten Island, N. Y.
	Northeast Oil, Houlton, Me.
	C. J. Styger Oil Co. Sussex, N. J.
Triangle Refining	Cotton Valley Solvents

In 1958

DX Sunray Oil Co.	Gafill Oil Co., South Bend, Ind.
Standard Oil Co. (N. J.)	Gaseteria, Inc., Indianapolis
Esso Standard Oil Co.	Lehigh Petroleum Co., Norwich, Conn.
Murphy Corp.	Lake Superior Refining Co., and Superior Refinery Owners, Inc., Superior, Wis.
Pontiac Western	Wilshire Oil Co., Los Angeles
Texaco Inc.	Seaboard Oil Co., Dallas
Tidewater Oil Co.	Gould Oil Co., Hyannis, Mass.
	Nutter D. Marvel, Georgetown, Del. (16 stations)

In 1957

Arkansas Fuel Oil Corp.	City Oil Co., Murfreesboro, Tenn.
American Petrofina	American Liberty Oil Co., Dallas
Bay Petroleum	Citizens Oil Co., Forsyth, Ga.
Cities Service Co. (Pa.)	National Oil Co., Richmond, Va.
Colorado Oil & Gas Corp.	Deem Oil Co., East St. Louis, Ill.
DX Sunray Oil Co.	Green Oil Co., Little Rock, Ark.
Kerr-McGee Oil Industries	Cato Oil & Grease Co., Oklahoma City
	Triangle Refineries, Inc.
Murphy Corp.	River States Oil Co., Evanston, Ill.
Socony Mobil Oil Co.	George C. Peterson Co., Chicago
Tidewater Oil Co.	Arguls Gas & Oil Sales Co., Brooklyn
	Voltz Oil Co., Bristol, Pa.
	James A. Clappison, Inc. Bath, Me.
Vickers Petroleum	Kent Oil Co., Salina, Kan.

The acquisition was a "natural." Ohio Oil got both the increased refining capacity and the marketing outlets without having to spend the capital or time to develop either. For Aurora, the merger was advantageous in that the owners could convert their shares in a privately owned and operated company into a publicly owned, easily marketable asset.

In almost all cases, the independent distributors being acquired by larger firms are getting very favorable terms. As one sales manager in the East puts it, "Why shouldn't they be happy? Wholesale markets are lousy. Many of the independents are getting on in years. At their

continued ▸

"The [international] cartel idea runs contrary to the basic economic concept of companies in this country. I don't believe they would be willing to abandon the free enterprise philosophy to this extent."

ROBERT O. LAW
Manager, Marketing Research & Planning
DX Sunray Oil Co.

age they don't have to go under in a gasoline battle. The suppliers are willing to deal."

In the oil country, matters have got so bad that a few of the independent producers are thinking in terms of long-term sales agreements, or possibly even partial integration.

"It appears," says Leonard Seaman, president of Intex Oil Co., Bakersfield, Calif., "that the producer is becoming more and more dependent on the refiner. Indeed, perhaps he must eventually think in terms of providing his own market."

Adds a Texas producer, "I don't know of any long-term crude sales agreements that have been made, but it's an interesting idea. Possibly something could be worked out on oil along the lines now used for natural gas. It could be a good thing, provided both sides were properly protected."

Comments a prominent oil banker in the Southwest: "Not too many independent operators realized it at the time, and some still don't, but the instituting of proration actually gives all the crude market to the majors. Compare oil and gas producers today. The gas producer has a contract. In most cases that contract specifies a minimum take and a firm price, and it usually runs for 20 years. The oil producer has no contract. He can only market through a major oil company, and that major can change the price when it wishes, and it can quit taking the oil tomorrow if it wants to. Oil has been in such big supply that the major, outside of some premium offered above the posted price occasionally, to change a connection, hasn't had to offer any inducement to the producer.

"The independents," the banker concludes, "have actually forgotten that there could be cooperative marketing. There is no reason, legal or moral, why the independents couldn't form cooperative marketing associations."

Most of the producers, however, are definitely cool to the idea of tying their own hands in any way.

Says Dallas independent J. S. Woodward, "I certainly hope the independent is never put in the position of having to make long-term sales agreements—and I see no immediate prospect of the independent merging with refiner-marketers. There is always a chance something like this will happen, but I hope it doesn't."

Observes a Houston producer, "Crude contracts are about the loosest contracts that an independent signs. At the same time, I don't thing long-term sales would be good. A few years back, we had production in five or six areas where the crude had a high gravity rating and was good for making high-octane gasoline. We made an agreement with several independent refiners to sell this crude for a premium—35¢ a bbl. above the going field price. We are still selling to them today for that price—but it is now below the posted price in the area."

Several independents doubt that refiners themselves would favor long-term sales agreements. "Why should they?" asks another Texas producer. "They think they can get the crude cheaper tomorrow. And it wouldn't do the independent producers any good to form some kind of organization and build their own refinery. The refiners would just cut the price, and you'd be out of business."

Finally, the producers simply want to stay in production, where they feel at home.

Says a Houston observer, "In this part of the country, the independent producers still have the attitude, right or wrong, that they want to find the oil, and sell the production, or sell out. They don't want to get into any other phase of industry operation. As for forming some kind of marketing cooperative, similar to that of the citrus growers in the Valley and on the West Coast—which would give them a better bargaining position for take and price—they seem to feel that somewhere along the line they would wind up bucking the majors. They don't see how they could win. And even if they developed a cooperative that evolved into an integrated operation, they would still have to compete with the majors' marketing organizations at the pump."

'Restraint' in Output Vital

Oil men say that a lot of the pressure would come off marketing, especially in the U. S., if management would exercise "industry statesmanship" and hold back excess crude and products output.

Says L. R. Kamperman, sales vice-president of Leonard

continued ▸

"Any joint arrangements among governments of producing countries to control production for their own ends . . . would last only as long as it would take the consuming areas to develop supplies elsewhere — either other oil or some alternative source of energy."

HOWARD W. PAGE
Director
Standard Oil Co. (N. J.)

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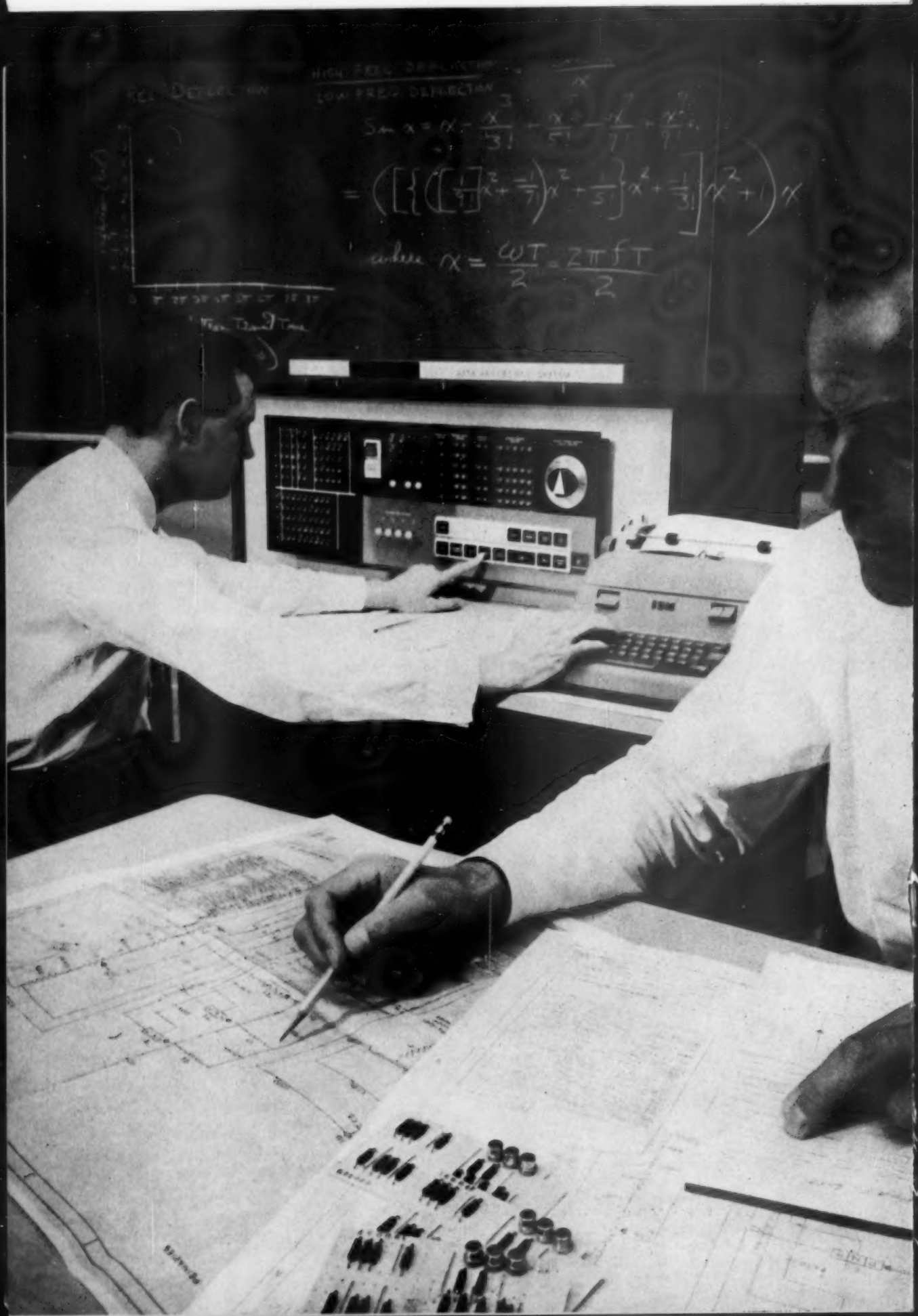
HIGH FREQ DETECTION
LOW FREQ DETECTION
$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \frac{x^9}{9!} \ldots$
$= \left(\left[1 - \left(\left[\frac{1}{7}\right]x^2 + \frac{1}{7}\right)x^2 + \frac{1}{5}\right]x^2 + \frac{1}{3!}\right]x^2 + 1\right)x$
where $x = \frac{\omega T}{2} = \frac{2\pi f T}{2}$

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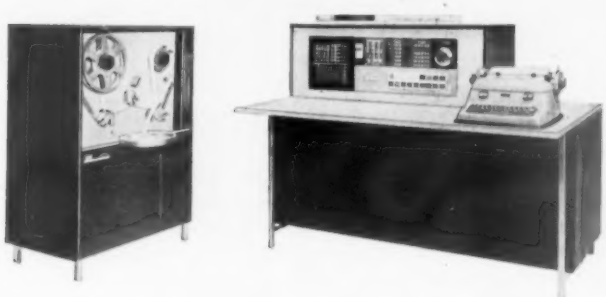

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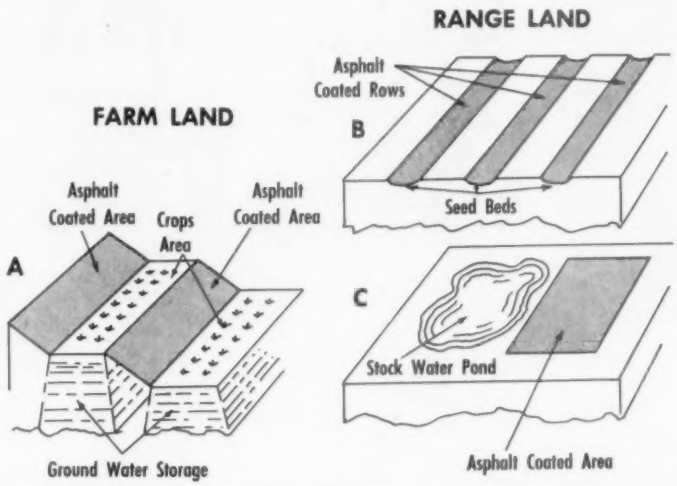


New Oil Uses On the Farm

A potentially large new outlet for asphalt lies in water conservation tests (left) being made by Esso Research & Engineering Co.

In Figure A, asphalt strips are laid to divert rainfall, thus increasing the amount of moisture available to each cultivated acre.

In Figure B, a thin layer of asphalt is laid over seed beds of grass for rangeland reclamation. The film holds in moisture for five to six weeks, enough time for seed germination and breakthrough.

In Figure C, an asphalt watershed provides extra water for farm or industrial use.

Refineries, Inc., Alma, Mich.: "Responsibility rests with top management of large companies to use some judgment on production of crude. Excess production can wreck the independent or nonintegrated companies. There has got to be a reconciliation of supply and demand before this industry can progress the way it should."

Independent producers are bitter about what they feel have been unnecessarily high refinery runs. Dallas independent Jake L. Hamon states flatly that mismanagement of inventories has brought U. S. producers to the brink of liquidation. He blames "about 30 of the nation's major oil companies."

A group of independent producer associations last month appealed directly to 30 big oil companies to avoid "injurious" supply practices. Letters sent out by a liaison committee representing 21 regional and statewide producer associations asked management:

(1) To require refining departments to practice more responsible refinery inventory management.

(2) To require crude purchasing departments to give more equitable treatment to oil fields served by company crude pipelines.

(3) To instruct company officials not to oppose the U.S. oil imports program by "devious means."

Oil men and governments throughout the world have been trying hard to come up with an idea for some workable form of international control of the forces of oversupply. Says Michel Halbouty, "We face a situation similar to that when East Texas threatened to destroy the American oil industry. Then we needed a stabilizing force. Today a similar threat, from the prolific fields of the Middle East, and soon North Africa, as well as South America, is present again, but on a worldwide basis.

"Unless someone comes up with some solution, the oil industry again faces chaos—only on a worldwide, rather than simply a national basis. No one knows what the answer is, but it might lie in some kind of international cooperation similar to the interstate cooperation that came about through the Interstate Oil Compact Commission in the 1930s."

Most industry men are pessimistic, feeling that international conflicts of interest are too strong. Typical comments:

- Standard Oil Co. (Ohio) executive—"I don't see how there could ever be agreement on a situation where pressures are so great and politics so insurmountable."
- Tidewater Oil Co.—"Apparently, efforts will be made toward worldwide proration. But it is doubtful that conflicting interest will permit a successful program."
- Socony Mobil Oil Co.—"We think the possibility of international proration is very remote."
- Southwest major company official—"I'm awfully doubtful. We don't do too well between states here in the U. S. When Texas cuts allowables, bordering states go up."
- Midwest major—"International control could not be policed."

continued ▸

"We have been so busy talking about octanes, additives, and brand names in trying to capture our share of the existing market that we have forgotten the vast, untapped reservoir of increasing our markets by increasing the total demand."

HARRY L. MOIR
Vice-President for Retail Marketing
Pure Oil Co.

How Mobil Oil Is Streamlining

One of the most significant reorganization moves is Socony Mobil Oil Co.'s combining its principal domestic affiliates into a single operating company (map). The operations of Magnolia Petroleum Co., General Petroleum Corp., and Mobil Producing Co. are becoming the direct responsibility of Mobil Oil Co.

Main goals: centralization of broad planning, and decentralization of operating decisions. Decisions by company managers will now be able to take into account conditions in all parts of the country. Duplication and overlapping of staff services will be eliminated.

Mobil Now Markets in 44 States

DX Sunray's market planning manager, Robert Law, sees the issue this way: "There are only two forms that any international agreement to control crude production could take—the imposition of government controls, or industry control through cartels.

"I do not see how the first alternative could come about, because of the diversity of interests among the various producing countries. With the exception of the U. S., none of the leading oil producing countries of the world are also leading oil consuming countries. Most depend very heavily on their oil income to support their economies. I can't see North African or Middle East nations agreeing to controls that would reduce their proportionate volumes on the world market to any great extent.

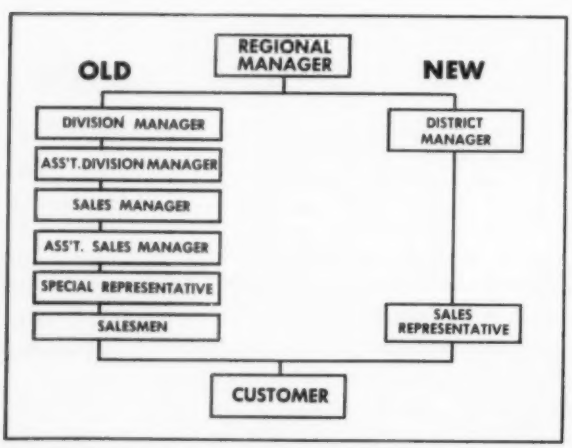
"As for cartels, the idea runs contrary to the basic economic concept of companies in this country. I don't believe they would be willing to abandon the free enterprise philosophy to this extent."

One of the strongest arguments against international proration comes from Jersey Standard, which stands to benefit as much as anyone from worldwide market stability. Jersey feels that controls would simply cause today's producers, as well as petroleum as an industry, to lose markets to competition.

Jersey Director Howard W. Page explains: "The trouble with the [international control] theory is in its premise. Oil is certainly a desirable fuel, but it is by no means irreplaceable. There are certain areas with large reserves that have become major exporting centers; but, as the developments in Canada and North Africa show, oil in quantity continues to be discovered elsewhere. Governments throughout the world in one way or another already are encouraging exploration of their territory for oil in the hope of saving foreign exchange, adding to national security, and promoting domestic industry.

"The oil business also faces ever-present competition from alternative energy sources. The principal one at present is coal. Consumers in many countries can, and do, switch rapidly from oil to coal on what we in the oil business consider to be very slight provocation. There are also enormous fuel resources in oil shale and tar sands that could and would be tapped today if the economic incentive were sufficient. Still further down the road is atomic energy. Oil has an inherent advantage over these other sources of energy that can be retained for many years, but only if supply and prices are not artificially controlled. Without such interference, both producing companies and governments should continue to prosper."

Page concludes, "Any joint arrangements among governments of producing countries to control production for their own ends would be as bad as joint action by the companies for the same purpose. Over the short run, there might be some gain in artificially creating a short supply and putting a floor under prices. But it would last only as long as it would take the consuming areas to develop the necessary supplies elsewhere—either other oil, or some alternative source of energy. Once developed, the other sources would not be shut back, even if oil again



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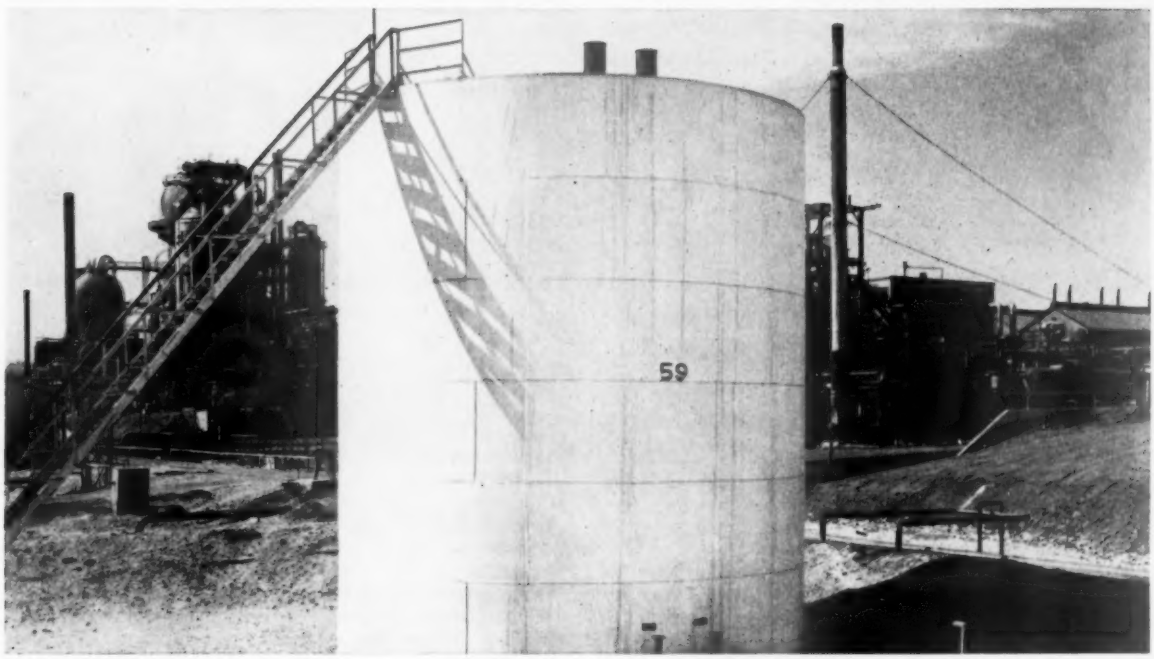

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became competitive. In other words, the loss of business would be permanent."

It's Time to 'Create' Demand

The conviction is spreading that finding new uses for oil is a better way to develop assured markets than trying to take business from competitors.

Says James E. Dyer, vice-chairman of the board of Sinclair Oil Corp., "The industry has never really had to 'sell' gasoline and other products in the sense of creating demand. People have always been ready to buy. 'Selling' in the oil industry has almost always meant convincing a waiting customer about the merits of one brand as against another brand. Oil salesmen have been too willing to fight for a bigger piece of the available pie, without thinking that maybe a bigger pie could be made."

Concurring in this is Harry L. Moir, Pure Oil Co. vice-president, who says, "We have been so busy talking about octanes, additives, and brand names in trying to capture our share of the existing market that we have forgotten the vast, untapped reservoir of increasing our markets by increasing total demand."

Indiana Standard's Dwight Benton has gone so far as to measure the potential. "From here in," he says, "we'd better resign ourselves to [U.S. demand] increases that will average out to about 3% a year. If the whole industry will apply itself to programs to expand the demand for oil, we might get it up to a 3½% annual increase, possibly more."

A harder push behind safer and easier automobile driving and more vacation travel is one of many ways by which oil companies are seeking to boost demand.

Tourist programs are being emphasized both by national marketers and by independent marketers serving vacation areas. (Example: the highly successful campaign of Leonard Refineries, Inc., to expand tourist travel in Michigan's Lower Peninsula.)

Cited as an example to follow in the heating oil field is Jersey Standard's program, started last year, of building demand in Europe by sending over teams of specialists from this country to advise European manufacturers about the latest techniques in home heating oil (PW—Jul.3'59, p34.) Training programs were established for personnel of Esso affiliates. As a result of the program, thousands of Western European home owners installed new oil-fired heating systems. In one country, 90% of all new homes and apartments are getting oil furnaces.

Other possible big-potential uses are being studied in agriculture and in the steel industry. India, Japan, Pakistan, and other countries are interested in the water-conservation tests of Esso Research & Enginering Co. (drawings, page 79). Such new methods would increase asphalt use. Other studies by the company, outlined recently by Vice-President William J. Sweeney:

- New-use areas in steel-making such as (1) upgrading iron ore, using a hydrocarbon fuel in the production of sinter, and (2) substituting oil for coke in blast furnace operations.
- Oil-fired air-conditioning, which has the advantage of boosting distillate sales during the summer slack period, and of increasing the over-all acceptance of oil.

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Quiet...Pressure Vessels at Work

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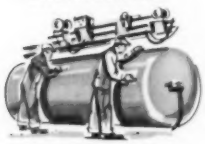

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GENERAL WHOLESALE DEPARTMENT

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• The use of oil fog to block heat radiated from the earth, thus preventing frost.

• The "blue sky" possibility of heating the water of the St. Lawrence Seaway, with oil as the fuel, to keep winter ice from forming. One method would be to raise warmer water deep in the channel up to the colder surface by bubbling the water with air from diesel- or turbine-driven compressors.

Comments Esso Research's Sweeney, "We should depend more on ourselves than we have in the past to find new uses for oil, and we must recognize that this is no easy task."

No Longer Room for Waste

The squeeze on margins and profits resulting from heavy oversupply is causing almost all oil companies to squeeze the fat from their operations. The most striking form of this is the trend toward top-to-bottom corporate reorganization.

Although the trend has actually been moving over the past several years, with changes made by California Standard, Gulf, Indiana Standard, and others, this year has seen the most sweeping shifts.

Socony Mobil Oil Co.'s almost complete reorientation, to "maximize" its profit potential, has produced a lean and simplified corporate structure (map, page 80).

Jersey Standard's recent mergers of operating affiliates, both in the U. S. and abroad, promise large cost savings. The Humble merger (PW—Sep.11'59,p13; Sep.18'59, p18) is viewed this way by Jersey President Rathbone: "Many efficiencies will result from just having all our domestic affiliates under one management. We will be able to use many automated techniques in accounting. We will be able to make decisions faster, since we will not have to cross corporate lines—something that has handicapped us in the past. We expect to have a nationwide brand and to expand to fill the gaps that exist in our marketing areas in the U. S."

Jersey Standard's streamlining includes a direct attack on the problem of excess capacity (the company expects to work it off gradually). Says Rathbone, "We plan more intensive use of our facilities in supplying our customers. We plan a considerably smaller margin of reserve capacity to meet fluctuations in the business than we previously felt was necessary. We think we will be able to do this by improving our operational programming techniques and by relying in some measure on supplementary product purchases from other suppliers.

"This arrangement will result in substantial savings in new capital, will permit a greater over-all use of our existing plant, and will increase the return on our invested capital . . . Already we have been able to bring about a very sizable reduction in the level of our capital spending. In 1957 we hit a peak of about $1.4-billion for capital spending and related spending in the search for oil. This year the outlay will be at least $400-million lower. My guess is that in 1960, and perhaps for a year or two thereafter, we will not again find it necessary to cross the $1-billion mark."

Savings in manpower costs are becoming impressive. "In a continuing efficiency campaign," reports Frank O. Prior, Indiana Standard board chairman, "my company last year reduced employment by 3,600—or a little under 8%. There seems to be a trend in this direction in the oil industry."

DINOSAUR IS BACK in new Sinclair sign that typifies attention oil companies are giving to improved brand display.

Needed: Better Merchandising

Each month it becomes clearer that the companies with steam behind new and aggressively efficient sales programs will pull away from their competitors. The "old way" is no longer good enough. A major company's sales vice-president puts the situation dramatically: "Neither waste nor error can be tolerated today. We market efficiently, effectively, or we perish. We make a profit, a truly reasonable profit, or we die."

Says a sales manager in the Southwest, "In the past two or three years, a lot has been done to correct some past marketing ills. Dead wood has been weeded out in some cases, distribution sharpened, and overhead costs cut. But marketing management in general still has a long way to go."

Some traditional marketing practices, such as service station operation, are being subjected to scientific questioning. "Is it actually good business," asks a market research chief, "to have two or three station attendants servicing each car that drives into the service station? Do extra men pay their way in terms of additional income to the station? Is the present design of stations actually the most efficient?

"Closer attention should be given to inventory control at products terminals; motivational research should be stressed; greater emphasis should be given to distribution cost analysis. It might be helpful to bring in outside ideas on industrial design, and to have outside efficiency experts take a look at the whole area of getting oil products into the hands of consumers."

Supplying companies have been reminding their distributors repeatedly of the need to keep pace with merchandising advances. This has created some internal friction within the marketing segment of the industry, since some jobbers have interpreted the reminders as being a threat to the jobber function itself. However, many jobber leaders themselves concede that some jobberships are not keeping pace with change.

continued ▸

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Designed expressly for American Petrofina, the plan provides eligible employees with both Life and Major Medical Insurance. This protection helps an employee's family to overcome the financial crisis which may occur should he die or should he or a member of his family require extensive medical care.

New York Life has installed similar plans in thousands of organizations here and in Canada. To find out how a similar custom-made plan can be made part of your employee benefits program call your agent, broker or write direct.

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The supplier viewpoint is put this way by Gulf Oil's senior vice-president, C. J. Guzzo: "A great future awaits progressive oil jobbers . . . but it is a fact that jobber operations have not been modernized and adapted to the new times to the extent of many other wholesale-retail businesses. There are many factors in modernizing petroleum marketing . . . In my view, the key lies in educating dealers in modern marketing. My suggestion [to jobbers] is the re-creation of the present dealer and direct marketing force into a superior selling organization."

Both majors and independents are placing heavy emphasis on "more volume through fewer outlets." Says an Ohio Standard marketing executive: "The number of service stations has decreased since World War II, but gallonage has increased. A lot of back-alley stations went out of business during the war and never came back. Sohio has 15% fewer outlets now than 35 years ago, but gasoline volume per station has increased something like three and a half times during the past 25 years. The trend is for the superstation to take over the business."

A Pure Oil Co. official says his company is "emphasizing selection of a limited number of new locations, disposition of a considerable number of marginal operations, and particular attention to upgrading existing stations—increasing volume and profit at each outlet."

The number of Indiana Standard's retail outlets has dropped 11% in the past five years, while average volume per outlet has risen 36%. Indiana has a new test program to determine if the company should go all out in realigning its marketing to sell through a relatively small number of big stations (PW—Oct.9'59,p15).

Almost all the companies surveyed by Petroleum Week report that their marketing expenditures are either rising or holding steady in the face of the over-all tendency to trim back spending.

Says E. H. Lyon, sales vice-president of Phillips Petroleum Co., "Our expenditures for marketing are increasing, with a fairly large amount being spent for the company's sign and paint program to give stations a 'new look.' Our increased emphasis in other directions is resulting in slightly higher expenditures for such items as brand advertising, container redesign, and market analysis."

Jersey Standard affiliates are cutting back spending in producing, refining, and transportation, as part of the over-all cost-trimming effort, but are making no reduction in outlays for marketing.

Spokesmen for other major companies make these comments about marketing spending:

- "Growth in our market has been at the rate of about 5% a year, and our marketing expenditures are increasing at approximately the same rate."
- "We will spend $17-million on our service station modernization program."
- "Our marketing capital expenditures increased about 15% in 1958 over 1957, and it is expected that expenditures this year and in 1960 will increase at a somewhat higher rate."
- "Our marketing budget is double this year over what it was in 1958, which in turn was about double that for 1957."

An example of specific marketing programs aimed at more "profitability" is Union Oil Co. of California's emphasis on "high-ticket" items. Explains senior vice-president A. C. Stewart, "The large increase we have had in average dollar realization per barrel has been due only in part to the decreased value of the dollar. More important to us has been the increase due to a higher percentage of sales of products having greater value. We have not only sold more gasoline compared to other products, but we have also put sales emphasis on other products that bring premium prices."

NEW FLOATING STATION and bulk plant of California Standard takes oil products directly to Alaska coast customers.

Stewart lists the company's premium motor oil, all-purpose grease, paraffin wax for coating milk cartons, and special highway asphalts.

Phillips Petroleum Co. is expanding marketing on two main fronts—the "new look" in retail outlets and the upgrading of service station personnel through educational programs. The company now has 18 permanent training stations, plus 13 mobile classrooms.

In recent months, Phillips has concentrated more effort on its fertilizer, liquefied petroleum gas, and marine sales. And, as part of a continuing geographical expansion program, the company recently moved into Ohio, establishing a new division sales office in Columbus.

American Oil Co. is emphasizing dealer and salesman training. The company has a new, intensified, 18-week program for salesmen that can be adjusted to suit the training needs of the individual.

Amoco also has: (1) a new credit program that allows dealers to stock lubes and TBA instead of tying up their credit in gasoline supplies; (2) an intensified truck-stop service station effort; and (3) continuing market research to pinpoint the company's strengths and weaknesses.

Esso Standard is pushing a rounded program for intensified selling at lower unit cost. For some time the company has been stressing such operating improvements as bulk-plant consolidation, improved truck scheduling, and use of larger trucks. Esso is now expanding its already extensive dealer training program. This fall it took on a major network television package—the NBC college-football telecasts on a regional basis. Esso's butyl-tire promotion this year was one of its biggest campaigns.

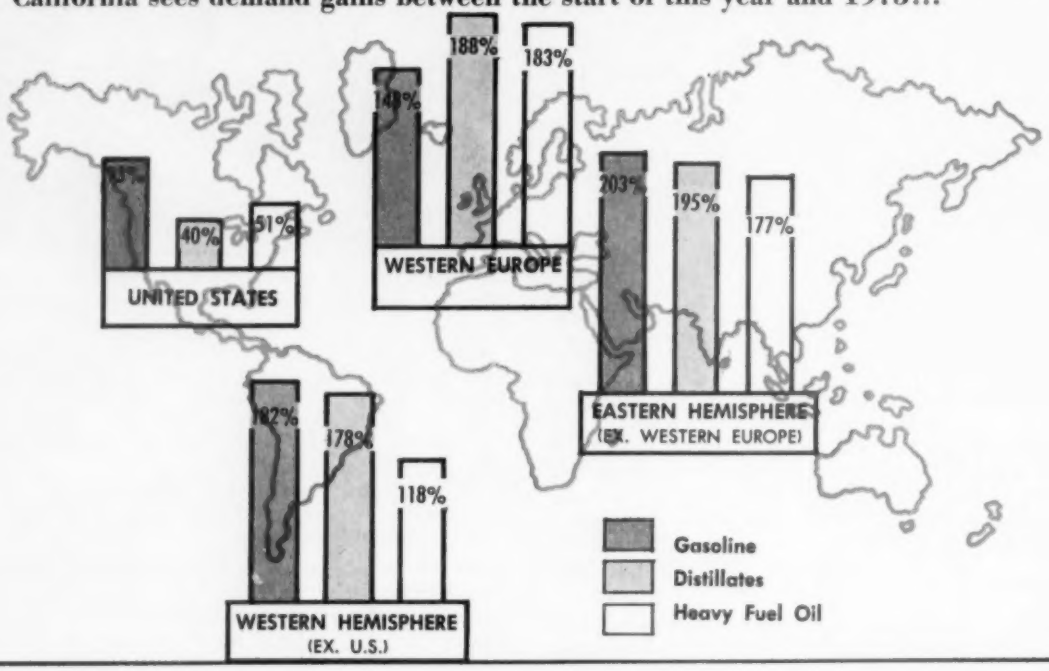
Ohio Standard is matching its own physical growth with a more scientific analysis of marketing than many companies are making. Sohio is one of the leaders in the use of electronic computer to "optimize" the sales effort.

"We are studying our market more carefully," says President Charles E. Spahr. "The function of market re-

continued ▸

How Oversupply Ills Will Be Cured

Rising oil consumption will eventually do it. Here is how Standard Oil Co. of California sees demand gains between the start of this year and 1975...



search has broadened, and we now know our customers better."

DX Sunray Oil Co. is aiming almost all its marketing expansion at the automotive trade. This includes the addition of several hundred new service stations. The breakdown for three years: 1957—152 new stations; 1958—128; and 1959—190 (including 75 stations purchased from Tidewater Oil Co.). DX marketing this year is getting an entirely new face—with modernized packaging, signs, stations, uniforms, and brand image. The company is also pressing research aimed at determining consumer acceptance of DX advertising campaigns.

New Demand Will Bring Cure

Industry leaders are confident that the steadily increasing appetite of the world's peoples for more oil will end many of today's oversupply hardships. (A measure of the potential demand increases is in the map chart above.)

Some oil men are calmly philosophical, like the sales manager in the Southwest who says, "I've been in this kind of activity for 29 years and have seen all this happen before. The industry goes through cycles. This is the fourth or fifth one I've been through, and they usually last about five years. Since this one is in its third year, it has about two more years to go before we will experience an upturn."

Says Eugene Holman, board chairman of Jersey Standard, "Populations are growing. People's aspirations are growing also, and their standards of living are rising. Needs become greater for many material things as such growth takes place. And when such needs increase, so also our opportunities increase."

J. Ed Warren, Cities Service president, calls future demand growth "by far the brightest and most hopeful prospect for the future of the petroleum industry." He feels the present excess world oil supply "will bear importantly upon the industry for at the very least another few years."

Needed most by oil managements facing complex and difficult years immediately ahead, in Warren's view: "Dogged determination to surmount the insurmountable."

Reprints Available

Reprints of this report are being prepared and will be available late this month. Single copies will be sent to Petroleum Week subscribers on request without charge. Additional copies will be billed at the following rates: 1-10 copies, 50¢ each; 11-100, 40¢ each; 101-1,000, 30¢ each, over 1,000 20¢ each. Address orders to:

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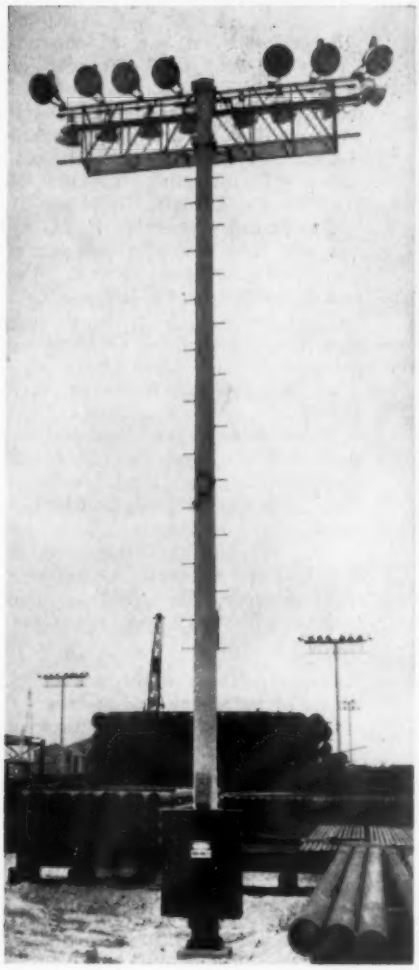
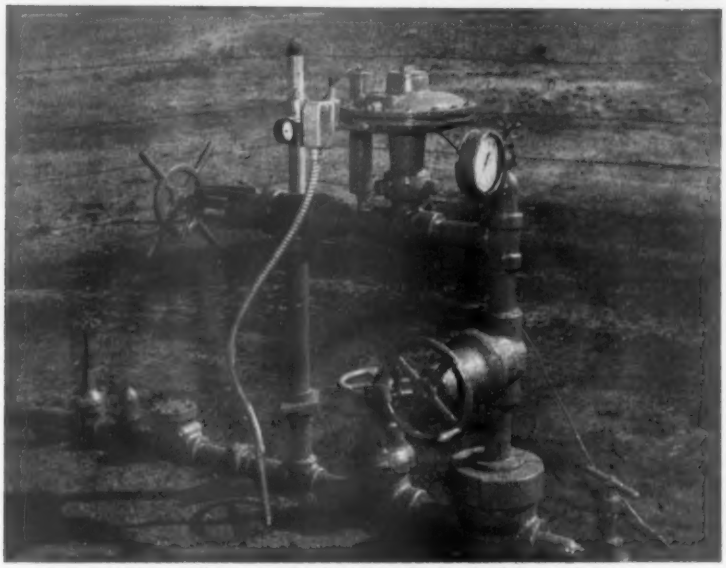
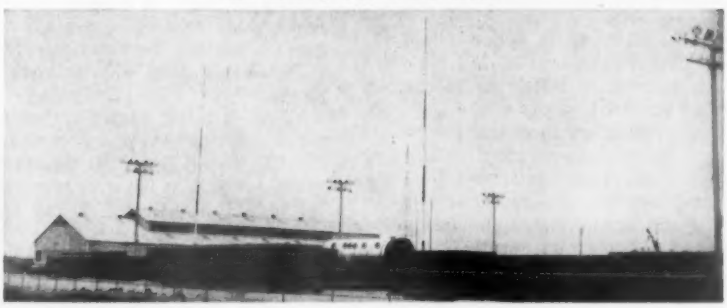




Electrically operated solenoid on flowing well with valve controlled by electric time-clock.



Lighting for oil company pipe storage yards and rail unloading areas.

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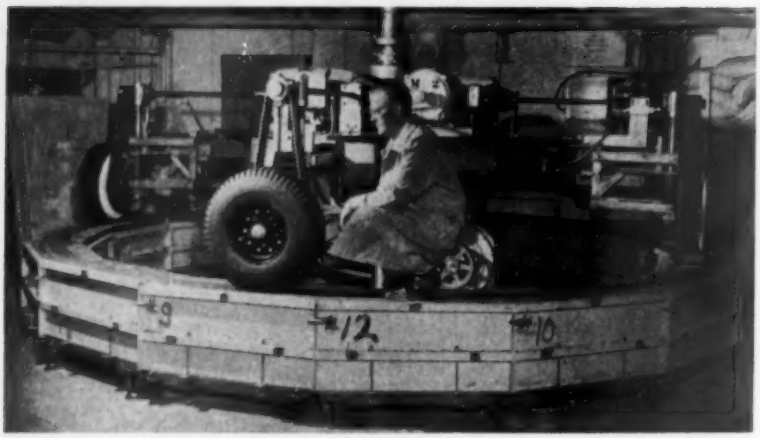

MERRY-GO-ROUND TESTER is used to simulate road conditions in this unusual . . .

Indoor 'Road Test' for Asphalts

Improvements in asphalt quality, in asphalt-base paving formulas, and in paving technique, can now be studied simply and quickly by means of a test-tube highway installed by Standard Oil Co. (Ind.) at its Whiting refinery.

The experimental highway is a 44-ft.-long circular roadway, 12 in. wide. It's possible to install 16 patches of road on this highway over a clay subgrade, and to test them simultaneously.

Four auto wheels speed around the test track. Their speed and the load they carry can be adjusted at will.

Furthermore, infrared and ultraviolet light, either separately or together, can duplicate the action of the sun's rays, induce oxidation, and produce a softening heat.

Finally, humidity can be applied, and freezing developed.

Thus, the effects of traffic under the most variegated conditions can be carefully observed and electronically recorded.

The simulated highway permits scientists to determine within a few days what happens to a road in years of use and weather changes, according to Tom L. Speer, senior engineering research supervisor for Indiana Standard.

The savings in highway research costs alone may run into millions of dollars, Speer predicts. For example, in 1958 the American Assn. of State Highway Officials built, near Ottawa, Ill., a $22-million research roadway, on which 300 Army Transportation Corps drivers and vehicles are subjecting a variety of pavements to traffic, 18 hours a day, 6 days a week. Indiana's motordome, Speer says, can answer similar questions in a fraction of the road-testing time, and with only one attendant in charge.

Tests are being conducted with paving asphalts of several penetration grades, entered in a great number of cement formulations. More tests will be done with cutback asphalts.

Work is being carried on at present on asphalts with penetrations from 150-200 to 60-70. A 50 penetration grade, lower than has ever been tried, will also be investigated. Epoxy resins and silicones also will have their place in the test program.

One important feature of the experiments deals with the color of asphalt: It is felt that if a lighter color asphalt could be developed, it would absorb less heat, and would thus have less tendency to soften up.

Reinforced asphalt—similar to reinforced concrete—is also being investigated.

Although the machine was only recently installed, it has already yielded valuable information, says Speer.

Some of the accomplishments:

- Spot-testing methods for roadway asphalts have been considerably improved.
- New, effective methods for reinforcing asphaltic slabs are being developed.
- The effectiveness of various methods to minimize reflection-cracking and chuck-holing in the thin asphalt overlays that are now used to patch worn concrete roads is being studied.

Buton Resin, Tough Polymer

Buton resins, a line of thermosetting polymers used primarily for surface coatings and for reinforced plastic laminates, will soon be placed on the market in commercial quantities by Enjay Co., the domestic petrochemical marketing affiliate of Standard Oil Co. (N. J.).

Commercial supplies of Buton resins will be available in the second quarter of 1960 from new facilities now being installed at Baton Rouge, La. and Bayonne, N. J., by its supplier, Esso Standard Oil Co. The initial capacity of 10-million lb. per year is easily expandable to double their quantity.

These resins were developed by Enjay's affiliate, Esso Research & Engineering Co., and were known in their pilot stage as C-oils and Butoxy resins.

They display high resistance to chemicals and temperature; and, on a cost-performance basis, will be competitive with epoxy-type resins, according to Enjay.

Basically, these resins are copolymers of butadiene and styrene.

Ordinarily, no great chemical or temperature resistance is expected from derivatives of butadiene, because of their unsaturated origin; they have never been considered too stable. Enjay claims, however, that it has hit on specific formulations which display unexpected stability.

Modern refineries ordinarily have an ample supply of the raw material, butane, for making the butadiene at a reasonable cost.

There are several varieties of Butons, derived from a basic "Buton 100."

For example, by a special treatment Buton can be made polar. Under the designation of Buton 200 and 300, the polar resins, differing from each other mostly in viscosity and concentration of polar groups, can be blended with such materials as ureas, melamines, alkyds, vinyls, phenolics, nitrocellulose, and others.

These Butons are used essentially for surface coatings.

Another variety, designated as Buton A-500, is used as the resin binder in reinforced laminates. In plastic fabrication, it is reacted with monomers such as styrene, vinyl toluene, or acrylics, and is thermally cured in the presence of organic peroxides.

Buton A-500, for which Enjay

New Nalco Coagulant makes Larger, Heavier Floc . . . Faster

Radically different Nalcolyte 110 used with Conventional Chemicals to Cut Costs, Speed Action in Water Clarification

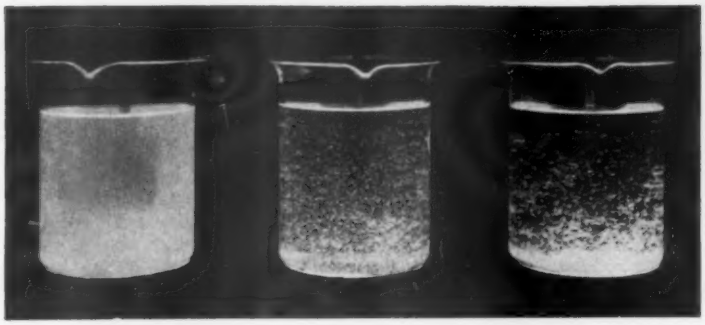

Photo taken in Nalco Laboratories 7 seconds after agitation stopped: *Left*, Control sample of untreated turbid water; *center*, same water, treated with 50 ppm alum; *right*, same water, treated with 20 ppm alum, 1 ppm Nalcolyte 110. Note that large, dense floc is settling out much more rapidly than center alum-treated sample.

Nalcolyte 110 is a new, non-ionic high polymer flocculant of very high molecular weight—over 1,000,000. It is used in extremely small dosages with conventional coagulants (such as sodium aluminate, alum, ferric sulfate) to increase size, density and uniformity of floc.

Less Chemical; Greater Capacity

Action of Nalcolyte 110 in creating heavier, larger, faster-settling floc not only permits greater throughput rates without floc carryover to processing equipment, but also cuts the total chemical requirements at a resultant cost saving.

In the example illustrated above, only 40% as much alum is required when Nalcolyte 110 is used.

May be Used in Potable Waters

Approved by the U. S. Public Health Service Technical Advisory Committee for use in treatment of public water supplies, Nalcolyte 110 gives water works the opportunity to get appreciably greater capacity from existing clarification equipment—at lower treating cost.

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Waters containing high suspended solids respond quickly to Nalcolyte 110 coagulating action . . . frequently without other coagulant chemicals.

Typical high suspended solids waters which can be treated with speed and economy with Nalcolyte 110 are paper mill white water systems, industrial waste waters, mineral slurries and blast furnace gas wash water slurries.

Nalcolyte 110 Easy to Handle

Nalcolyte 110 is a coarse, white, free-flowing powder of non-toxic character. It is fed in dilute water solutions with standard liquid proportioning pumps or feeders. Stock solutions are prepared at concentrations up to 20%. Packaging is in convenient 25-lb. bags.

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(Above) This view of Platformer LPG recovery section shows deethanizer (left) and depropanizer tower (center). Third tower (right) is Unifining Unit's stripper column.

New Platforming® unit boosts production of high-octane gasoline nearly 200%

DX Sunray upgrades product quality, boosts motor fuel production capacity, with five new UOP process units

by Harry A. Brown
Vice President of Manufacturing
DX Sunray Oil Company,
Tulsa, Oklahoma

Harry A. Brown

In little more than three years after becoming the refining and marketing subsidiary of Sunray Mid-Continent Oil Co., DX Sunray Oil Co. launched a major modernization program.

In early 1959 we placed on stream at our West Tulsa refinery a 20,000 BPSD Unifining* unit, a 12,000 BPSD Platforming unit, a 2,400 BPSD Isomerization Unit and a 2,500 BPSD HF Alkylation unit. At about the same time we added at our Duncan, Oklahoma, refinery a 6,000 BPSD Unifining* unit to an existing layout which already included a 6,000 BPSD Platforming® unit, a 22,000 BPSD Fluid Catalytic Cracking unit, a 3,500 BPSD HF Alkylation unit and a 750 BPSD Catalytic Condensation unit. Installed at a cost of $12 million, and designed and engineered by Universal Oil Products Company, our new units are the most modern available and were installed to carry out our avowed objective of marketing high-quality products.

Triples high-octane output

The four UOP units provide more high-octane gasoline than the Tulsa refinery previously manufactured. The new Platformer almost triples the output of high octane gasoline there, and addition of the new HF Alkylation unit more than doubles DX Sunray's potential for producing 105-octane gasoline.

*Trademark

Being charged to the new Unifining unit is a blend of straight-run and coker naphthas for preparation as feed stock to two Platformers. These include a 7,500 BPSD reforming unit that was converted to UOP Platforming in June of 1956 and the new 12,000 BPSD unit completed this year. At relatively low cost, Unifining desulfurizes and purifies the Platforming feed stock and transforms olefins into paraffins. Combined operation with Platforming provides a most economical source for the hydrogen required in Unifining.

LPG unit recovers butane, propane

At the new Platforming unit, the Unifined, dependanized C_6-plus naphtha, or feed stock, is heated and contacted with a specially prepared platinum-containing catalyst under operating conditions to produce a C_5-plus gasoline with a leaded octane number as high as 99, if required. A rerun tower is provided for preparation of selected blending stocks. In conjunction with the Platformer there is an LPG unit designed to recover 92% butane and 60% propane.

In conjunction with the decision to modernize the Tulsa refinery, we gave careful consideration to future demands for higher-octane gasoline. Expanded facilities for alkylation, to produce motor alkylate as a blending component, were chosen since sufficient quantities of butane available in our refinery streams could be isomerized and, as isobutane, utilized as one of the feed stocks for HF Alkylation. Universal engineers, therefore, designed a 2,400 BPSD Butane Isomerization unit to service the HF Alkylation facility. The two processes are controlled and operated as a single unit.

Could produce 105-plus leaded octane

The HF Alkylation unit product is 2,500 BPSD of 105-octane gasoline blending stock. Actually, the unit would permit the Tulsa plant to turn out gasoline exceeding the 105 octane number (leaded) if market conditions should so dictate. However, DX Sunray has no immediate plans for producing motor fuels in such super ranges. If and when the need for higher-octane gasoline arises, we're ready for several years to come. Meanwhile, much of this high-octane alkylate is used to manufacture aviation gasoline. The remainder is blended with other refinery stock to produce a premium gasoline which is equal or superior in quality to any in the DX marketing area.

Combination HF Alkylation— Butane Isomerization unit assures potential production of super-octane gasoline

View of DX Sunray's Isomerization unit showing three reactors at left. Second tallest tower (center) is the debutanizer column. Deisobutanizer (right) is the highest refinery tower in Oklahoma.

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claims high qualities of chemical stability as well as a very high electrical resistance, is intended for such reinforced plastic applications as housewares and electrical appliances, table tops, airplane and automobile parts, and as an encapsulating agent particularly suitable for aircraft circuitry.

The curing of Buton surface coatings is accomplished by heat conversion. A novel characteristic of Buton surface coatings is that they can be flame-cured.

The flame-curing technique consists in impinging a gas flame directly upon the surface of the wet resin coating. The solvent it contains flashes off, and the resin is converted to a tough, mar- and chemical-resistant film.

This technique, according to Enjay, is specific to these polymers. It makes it possible to cure the coatings 20 to 50 times faster than by baking, and to cure in-place equipment too heavy or too bulky to be baked. Also, continuous coating, curing, and packaging can be done in one flow operation.

Curing time, once, the proper temperature has been reached, generally varies from 2 to 15 seconds.

All Buton resins for surface coatings can also be cured by conventional means at temperatures of 300F-400F. Butons 200 and 300 can be cured at even lower temperatures with the help of catalysts.

In addition to their high resistance to chemical action, Enjay claims many qualities for the Buton resins. Among these are:

- Excellent adhesion, essential for metal coatings.
- High gloss.
- Good pigment wetting, needed for proper color dispersion.
- Good corrosion resistance when used as primers.
- Ability to be used with such reinforcers as glass fiber.

Buton A-500 is at present being tested for the manufacture of reinforced plastic pipes. It is also being evaluated for components in the missile field.

The Buton resins are of much lighter density than most other resins. They weigh from 7.65 to 8.5 lb. per gal. This, Enjay says, is an additional asset, because formulators buy the resins by the pound, then sell their finished products on a volume basis.

The Butons are said to be nontoxic.

The bulk price of the basic Buton 100 in semicommercial quantities is now 35¢ per lb. of resin. It is anticipated that long-range commercial prices will be somewhat lower.

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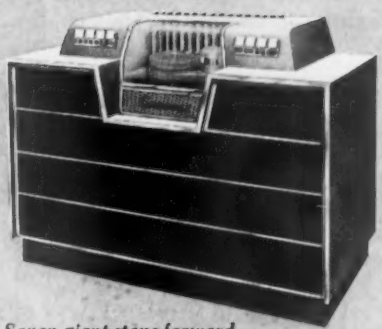

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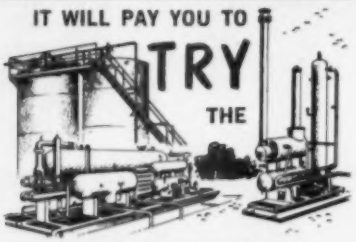

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Inert Gas Boosts Lube Stability

Using an inert gas to blanket the lubricating system of an advanced flight vehicle may make it possible to use conventional lubricants at temperatures much higher than would be possible in air.

This method of attacking the high-temperature lubrication problem for high-speed aircraft and spacecraft was described at the recent conference of the American Society of Lubrication Engineers, in New York, by a group of engineers from Southwest Research Institute, San Antonio, Tex., and from Wright Air Development Center.

The work on this problem is part of a research program conducted under the sponsorship of WADC, to explore possible ways to extend the capability of available lubricants. It is independent of the program to develop new, improved lubricants.

Tests conducted on case-hardened steel gears with a variety of lubricants, under carefully controlled conditions, showed that the use of inert gas atmospheres markedly increased the load-carrying capacity of petroleum-base oils, with and without extreme-pressure additives.

Two types of gear-test machines were used for the work. One was the standard Ryder gear-test machine, in which two pairs of standard spur gears are loaded against each other, in a square. This is the machine conventionally used to determine the load that gears can carry without scuffing (known as the scuff-limited load). The other was a specially designed Ryder machine, built by SWRI for the tests.

The scuff-limited load was defined as the tooth load, on the narrower of two sets of AMS-6260 steel gears in the machine, at which an average of 22.5% of the tooth area became scuffed.

Nitrogen and argon were the inert gases used. The gas was carefully deoxygenated, cooled, and dried, and its flow measured. Tests were also run with air, under both static and flowing conditions, to make the comparison. The machine was operated at 10,000 rpm., and the gears were observed through a clear plastic plug. Each loading period lasted 10 minutes, at the end of which the gears were examined under a microscope.

The lubricants studied were:

- Two regular petroleum-base oils.
- Four experimental synthetic oils.
- Two qualified diester oils.
- The same petroleum-base oils with three conventional extreme-pressure additives.

No significant difference was found between the data obtained with static air and flowing air, nor between the use of flowing argon and nitrogen.

The substitution of either argon or nitrogen for air, however, resulted in a marked improvement in the behavior of the petroleum-base oils and of each of their additive blends. Increases in the scuff-limited load in lb. per sq. in. varied from 26% to 90% for a turbine oil base stock and its three additive blends, and were as high as 120% with a white mineral oil.

The tests also showed that, with the exception of one proprietary silicone oil, the synthetic oils showed little, if any, response to the blanketing method.

The scuff-limited load of these synthetic oils, in static or flowing air, was generally substantially higher than the loads which the petroleum-base oils were capable of withstanding in air. But with inert gas blanketing, the mineral oils came up to the scuff-limited load standard of the synthetic oils, while the latter showed no improvement.

Quite aside from the atmosphere in which lubrication takes place, resistance to scuffing in high-speed gears operating at high temperatures depends on the compatibility of the metal of the gear with the type of lubricant used.

At the same ASLE conference, engineers from the small-aircraft-engine department of General Electric Co. disclosed the results of tests carried on at 700F with two major types of oils on ten different metals. The oils were:

- A high-temperature Pennsylvania heavy neutral oil, with an antifoam additive and an oxidation inhibitor.
- A chlorophenyl methyl silicone oil.

The machine used in these tests was one called Gear Roll Tester, built in GE's laboratory, and said to provide the rolling-rubbing action of a gear tooth over a wide range of surface speeds, loads, and temperatures. Two rolls rub against each other, one rotating at 175 rpm., the other at 10,000 rpm.

To estimate the scuffing limit of a set of gears, the flash-temperature parameter was used. This is the temperature at which the heat generated by the friction between the gears is greater than can be dissipated by the flow of oil and by conduction through

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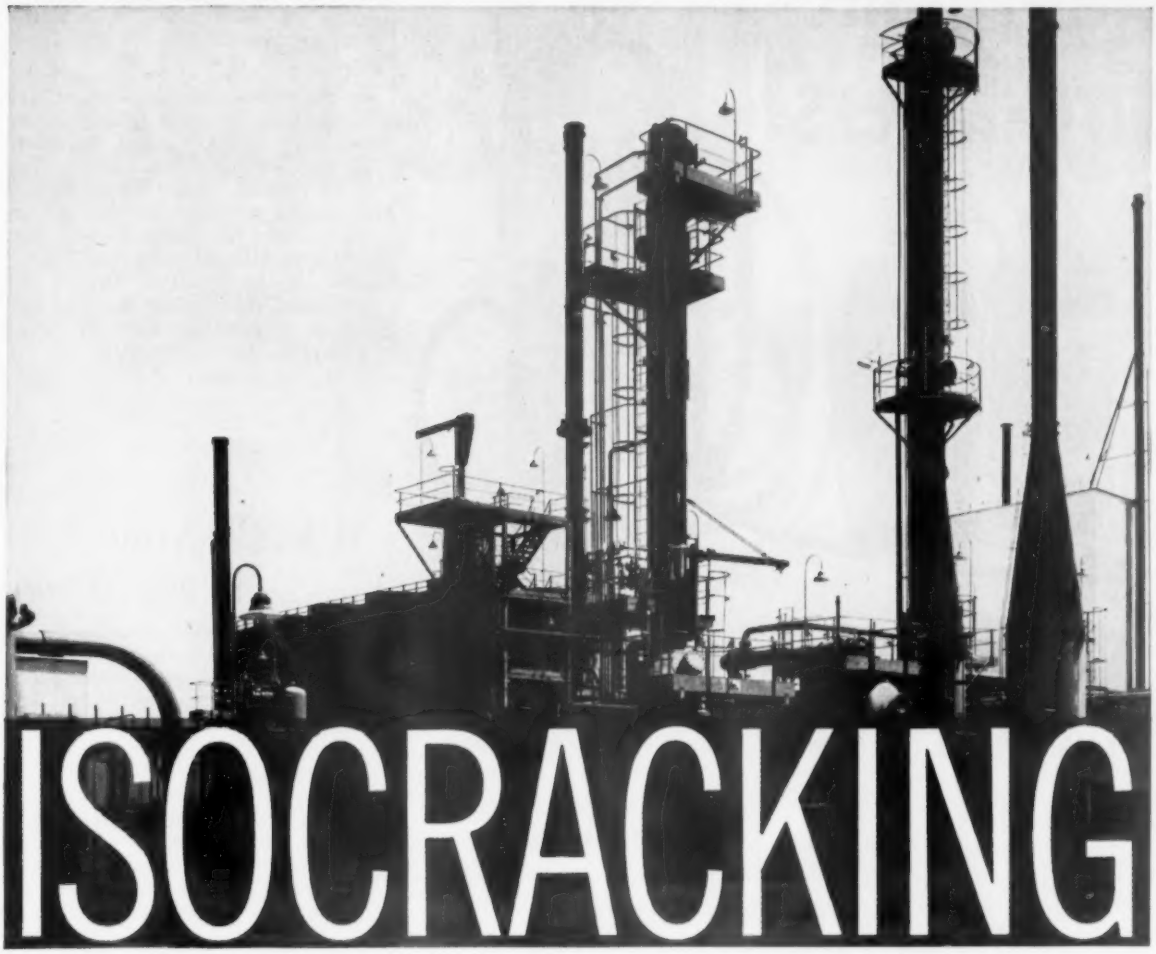

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The *Isocracking* Process is offered under license by California Research Corporation, and pilot plant facilities are available for evaluation of feed stocks. **We invite you to discuss *Isocracking* with our engineers, at the Chicago API meeting, November 8-12.**

For complete details, write for brochure:
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the metal. Then the lubricant breaks down by volatilization or reduced viscosity, and the two metals come in rough contact, resulting in welding, tearing, or abrading.

On all but two of the metals tested, the petroleum-base oil raised the temperature at which failure occurs from 50F to 100F above the limit reached with the synthetic oil.

The two exceptions, where silicone oil raised the scuffing temperature limit above that reached with the petroleum-base oil, were H-12 hot-work die steels, either nitrided or carburized. The former displayed excellent high-temperature resistance with either lubricant.

M-1 high-speed tool steel also proved very resistant, and had a decidely higher flash temperature parameter with petroleum-base oil.

What's New

IN PROCESSING

Esso Research & Development Co. officially opened its new center this week, at Florham Park, N.J. It will be the base for engineering and research activities of Standard Oil Co. (N.J.) and its domestic and foreign affiliates.

Main features include a four-story process research center, housing pilot units of refinery processes under study, and a computer center, equipped with an IBM 704 digital computer and an Electronic Associates analog computer.

The new center will employ 800 of the 3,000 employees of Esso Research; the balance will continue to work at the Linden (N.J.) research center.

•

El Paso Natural Gas Products Co. has acquired United Carbon Co.'s minority interests in Odessa Butadiene Co. and Odessa Styrene Co., Odessa, Tex.

Terms of the sale were not revealed.

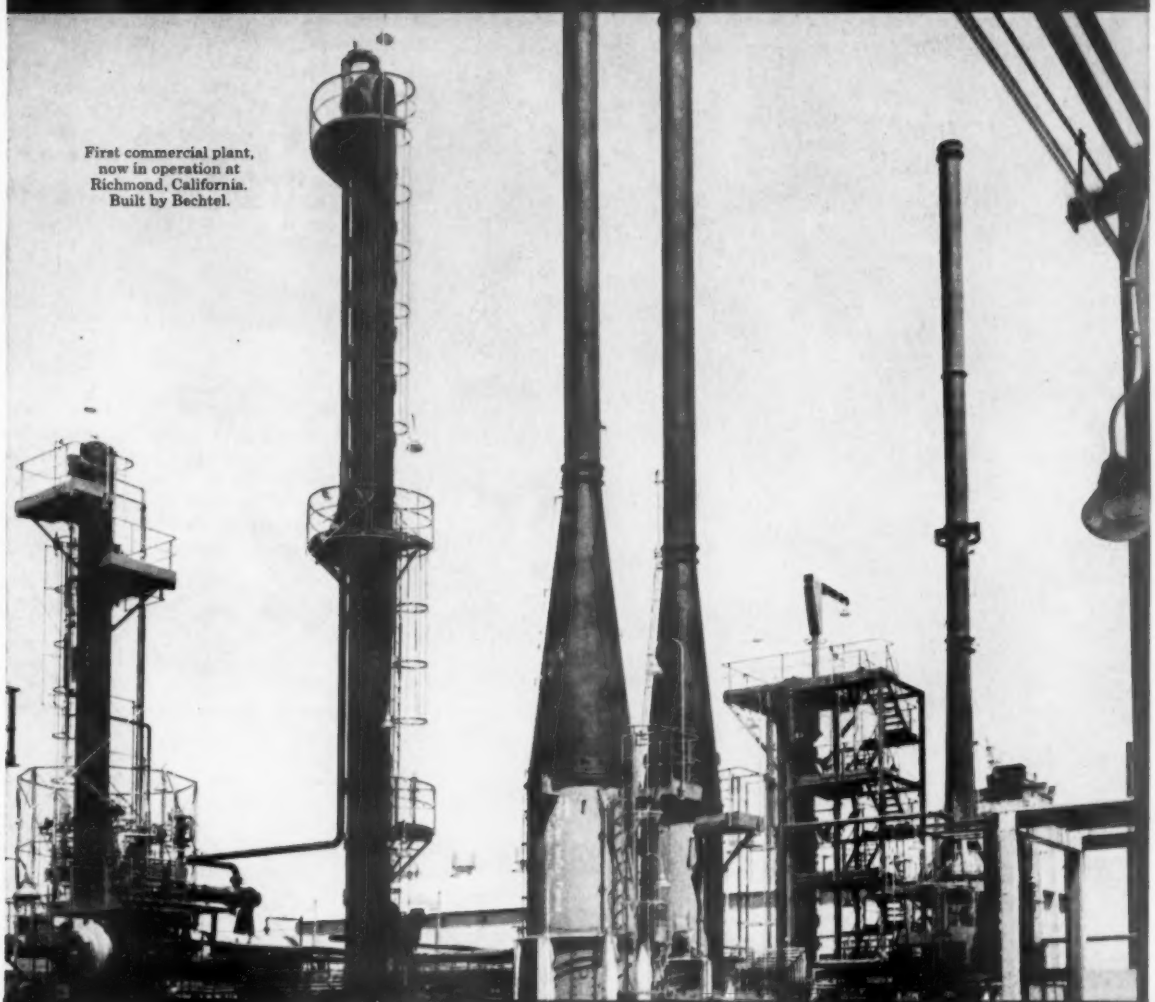
El Paso, a wholly owned subsidiary of El Paso Natural Gas Co., is now operator and majority holder in both firms, holding 100% ownership of the styrene company and 75% ownership of the butadiene firm.

•

Installation of a 4,500 b/d gas oil hydrotreater is set for Texaco Inc.'s Casper (Wyo.) refinery.

Badger Mfg. Co. will handle the engineering and construction. Start-

ISOCRACKING* is here!



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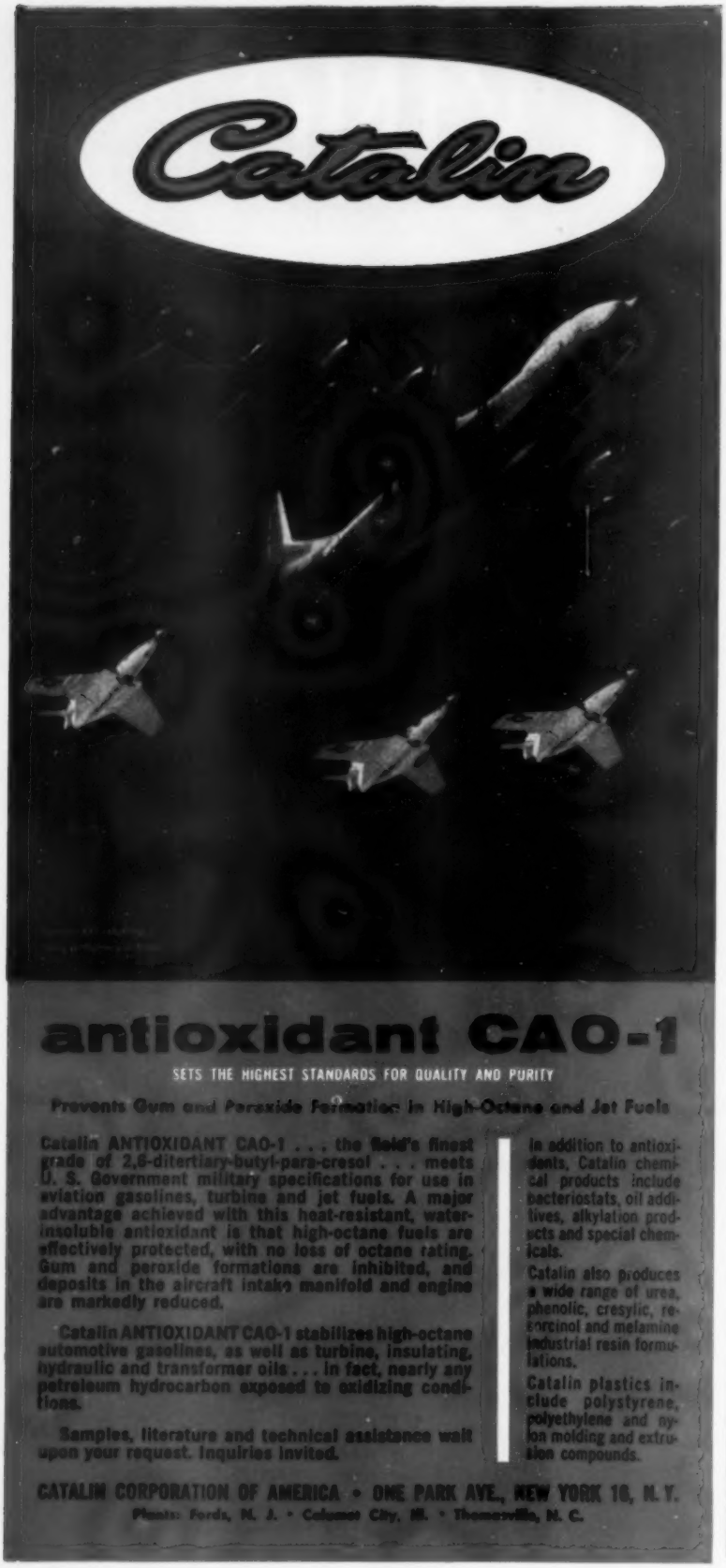
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ing date for construction was not announced, but completion is expected by late 1960.

•

Collier Carbon & Chemical Corp. will build multimillion-dollar facilities for the production of sulfuric acid and ammonium sulfate, near Wilmington, Calif. The company has obtained an 11-acre site from Union Oil Co. of California for construction of the two units.

•

Another gasoline additive hit the market last week—Vickers Petroleum Co.'s "Amer-All."

The three-way additive is blended to act as a de-icer, a corrosion deterrent, and a cleansing agent for the fuel system, removing deposits from carburetor walls. It will be used in regular and premium gasolines.

•

W. R. Grace & Co., New York, will operate Gonzalez Chemical Industries' ammonium sulfate plant at Guanica, Puerto Rico.

The 400-ton-per-day plant uses the Texaco partial oxidation process to manufacture ammonia from crude.

•

Bechtel Corp., San Francisco, will furnish design, engineering, and construction services for California Research Corp.'s new Isocracking process (PW—Oct.23'59,p15).

Bechtel recently completed the first commercial unit for the conversion of low-grade petroleum fractions into high-octane gasoline by this method at Standard Oil Co. of California's Richmond refinery.

•

Chemical changes resulting from nuclear radiation will be studied at Socony Mobil Oil Co.'s Princeton (N.J.) research center. The new center, will also study reactions on catalysts used in refining and petrochemical processes.

•

Canadian Husky Oil Co.'s Fort William (Ont.) refinery started operating on Venezuelan crude last week. The 4,000 b/d plant had formerly used crude shipped by rail from southeastern Saskatchewan fields.

Spokesmen for Husky, long an outspoken critic of crude imports into Canada, would say only that the decision to import "was based on business considerations."

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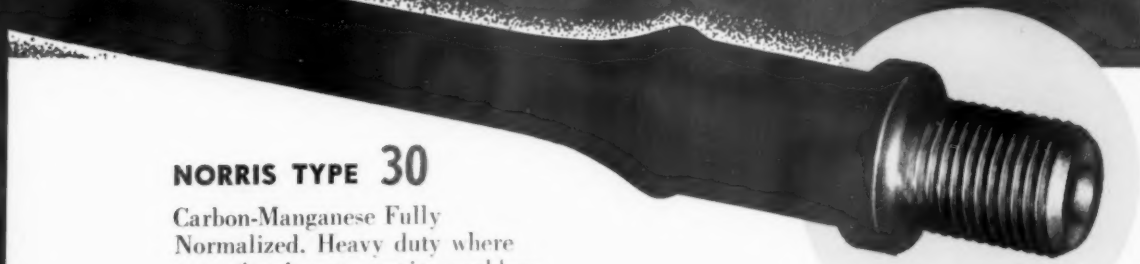

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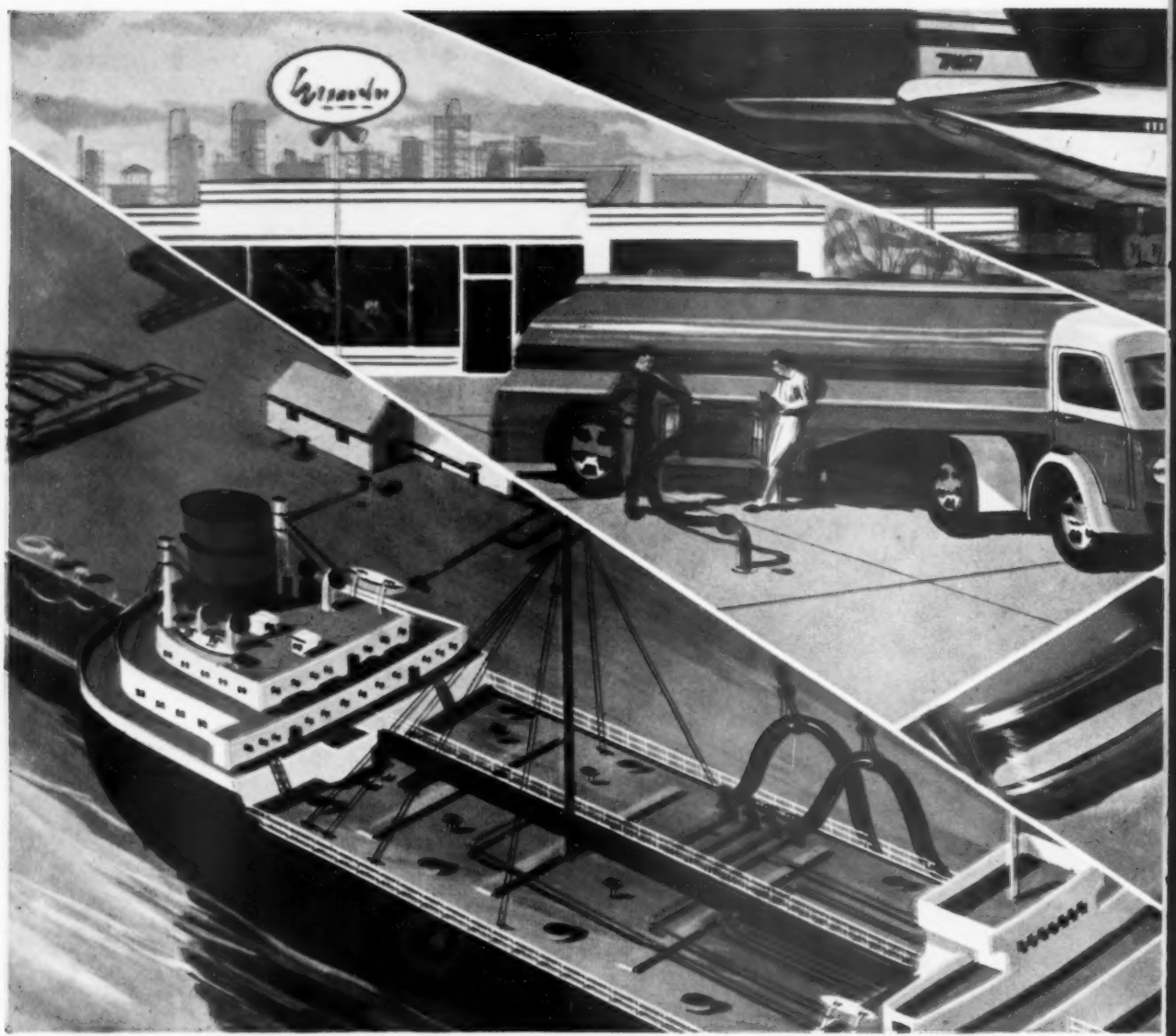

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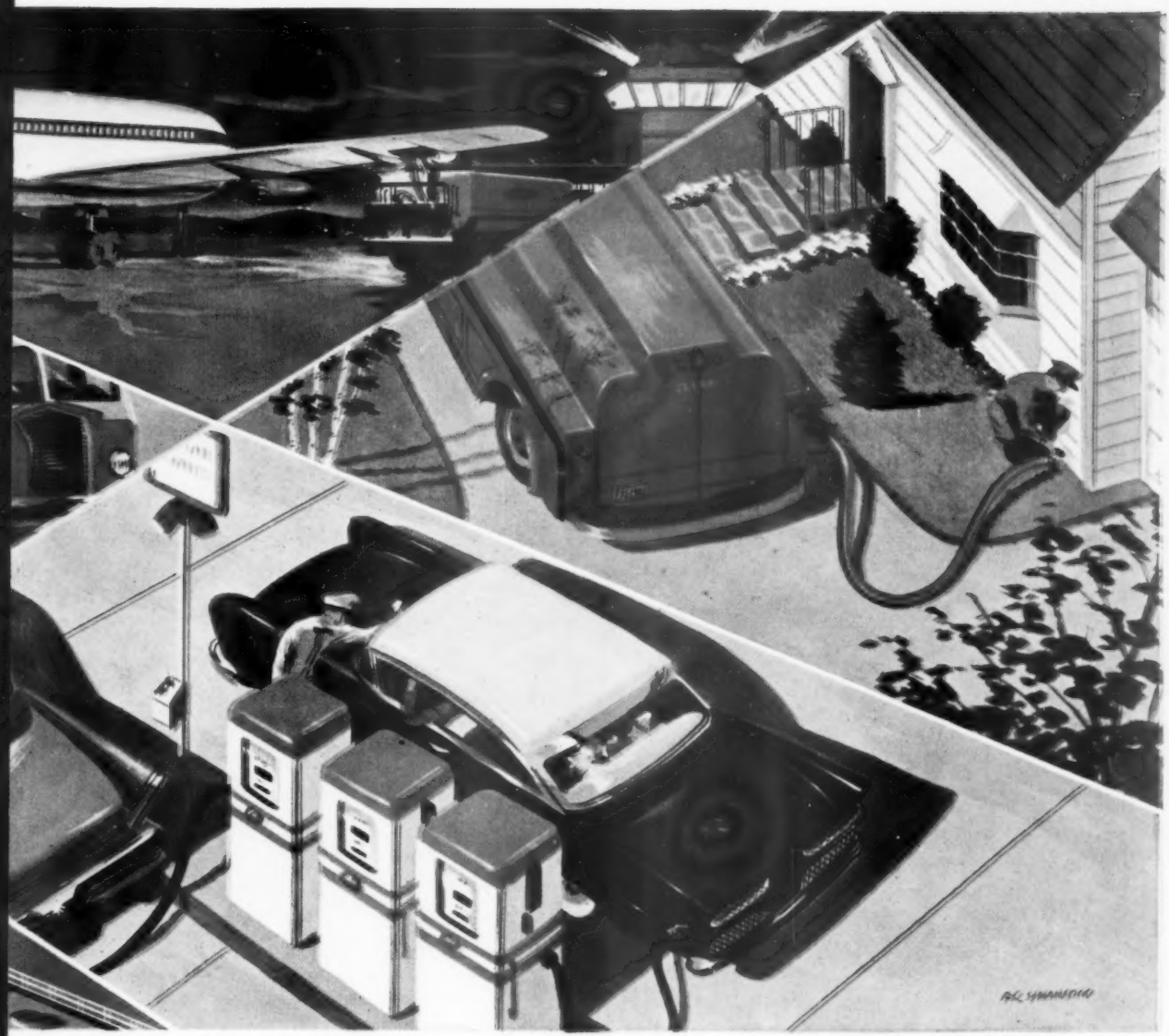

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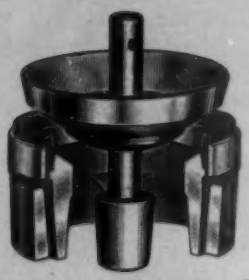

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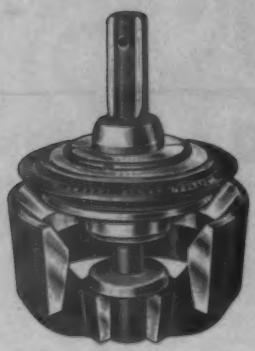

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Colombia at Crossroads on Oil Policy

Columbia's proposed new oil law has hit the industry like a bucket of cold water. It is likely to dampen enthusiasm for new and renewed investment, and result in a slowdown in the now oil-active country.

The preamble of the proposed law says, "It is necessary to make the country attractive to oil interests and to protect the national interest." The draft then proceeds to saddle companies with new burdens and restrictions which, oil men feel, will have exactly the opposite effect—that of making the country unattractive for oil ventures.

The proposal before Congress is an abrupt switch from the former policy, which has spurred exploration so effectively in the past. Operators say that under the new law they would think twice before spending more money in the search for Colombian oil.

The stiffer terms of the proposed law would mean costlier payments and increased obligations for both existing and new concessions. Royalty payments would rise sharply, and the depletion percentage would be radically cut.

Key changes from the provisions of the existing law include increased drilling obligations and a cut in the term of the concessions (box, below).

The bill comes at a time when Colombia's oil industry is growing by leaps and bounds. Production is up 20% to an all-time high of 150,000 b/d. And wildcatting activity is up over 25% from last year's high.

Nevertheless, operating costs are high and the rate of discovery low. Only five major producing areas have been found since the discovery of the Infantas field in 1918. They are the Barco area, in 1940; Casabe, 1941; Cantagallo-Yarigui, 1943; Velasquez, 1946; and Cicuco, 1956. Together these six fields provide about 90% of Colombia's crude production.

The rough topography makes transportation costs high, and much equipment must be flown into operating areas. In addition, the land is structurally and stratigraphically complex.

Companies have already spent some $900-million on exploration in

Proposed Salient Changes in Colombia's Oil Law

• **ROYALTY**—In the west, rates would jump from the present sliding-scale of 3% to 13%, payable at port, to a whopping 14½% flat rate, payable at the field. In the east (Llanos), rates would jump from a flat 3% to 12½%. The government, however, would be allowed to make deductions of up to 5% in either area if production costs inhibit development. The gas royalty would climb from 5 centavos per 10,000 cu. ft. to the same percentage rates proposed for crude.

• **DEPLETION**—The tax allowance would be radically cut, from 25% of gross in the west and 28% of gross in the east to a flat 10% in both areas. An additional 10% in the west and 13% in the east could be obtained for amortization only on development concessions granted after Jan. 1, 1955. This, in effect, is applicable to only one present major producing area, Cicuco. The other five major producing areas are on concessions granted before 1955.

• **TAX LIMIT**—No limit is proposed on the government's total take of taxes and royalties. Present limits are 40% in the east and 50% in the west.

• **CONTRACT PERIODS**—The maximum exploration period would be chopped by 5 years, from 11 to 6 years in the west and from 13 to 8 years in the east. Initial periods would be 3 and 4 years, respectively, with extensions permitted up to the maximums. The development period would be cut from 50 to 40 years in the east, and remain at 30 years in the west. Whereas extensions of 10 years in the west and 20 years in the east may now be obtained, the new law stipulates that no extensions will be granted unless development is started before expiration of the exploration permit. And then the extension may only be equal to the unused portion of that grant.

• **DRILLING OBLIGATIONS**—Drilling must be started before the final six months of the initial exploration period. Under the proposed new contract periods, this would mean drilling within 2½ years in the west and 3½ years in the east. The new law would require a minimum of 8,200 ft. of hole in the initial period. There are no footage requirements in the present code.

• **RELINQUISHMENT** — Although it's not spelled out, the proposed law implies that the relinquishment of concessions at any time would require proof that further exploration is technically unjustifiable. No explanation is needed at present.

• **SURFACE RENTALS** — Payment would have to be made in dollars instead of pesos, with the rate pegged at one dollar to one peso (or about nine times the current value of the peso).

• **DEPOSITS**—The surety guarantee would be raised from one peso to one dollar per hectare, but in no case less than $25,000 for each concession.

• **PIPELINES**—All except gathering lines would be considered common carriers. The pipeline tax would be increased from 2% to 4% for lines serving the Llanos.

• **AMORTIZATION**—The deduction would be increased from 5% to 10% until development begins—one of the few liberalizations in the code.

• **PERSONNEL**—The law would require that 70% of the classified employees' payroll and 80% of the ordinary workers' payroll go to Colombians. At present 80% of classified and 90% of ordinary employees must be Colombians, without regard to payroll percentage.

Colombia. Socony, Standard of California, and Jersey Standard have spent almost $200-million but have found no oil. Jersey bought the Infantas field. Texaco has spent $128-million on its exploration and development program and now has production of 40,000 b/d in the Velasquez area.

Oil men feel that more oil will be found—but only at considerable expense. One oil man says it will take $350-million to conduct a complete drilling program in the Llanos, the eastern Colombia plains; and a 1-billion-bbl. field would have to be found to make the venture pay off. In the light of such costs, he adds, new financial burdens imposed by the government would be "disastrous."

Colombia is faced with a dollar-supply problem. Falling coffee prices have hampered the economy. But the country is doing a good job of getting back on its feet. Imports have been cut, and other conservative measures adopted.

The industry feels that Colombia needs oil dollars now and, therefore, that there should be a balance of economic factors between the companies and the government to attract more oil money.

Oil companies, in the midst of preparing budgets, are uncertain about Colombia's future. And they are not willing to invest large sums of money if a long-term program cannot be mapped.

Budgeters are faced with the difficult decision of whether or not it is reasonably safe to undertake such projects.

Colombia's Congress is faced with the necessity of either approving the draft legislation or extending the present oil code.

The existing code, in effect, expires at the end of this year. It is made up essentially of a series of past decrees that were validated by Congress for a period that runs out Dec. 31. There are a few decress specifically ratified or amended by Congress that will remain in effect.

Although the new proposal was drawn up in 1958, no action has yet been taken. Now, as the deadline approaches, Congress must act one way or the other.

Two proposals extending the present oil code are before the Congress. One provides for the extension of the present code for five years; the other would give the President the right to extend or abrogate the present laws, but not to amend them.

Industry feels that the proposed five-year extension would ease the current problem. It would give companies sufficient time to plan effective exploratory programs. It would also allow time for the possible redrafting of legislation that would please the government and protect its interests, and still make the country attractive to oil men.

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J. P. Murphy, General Manager, Denver

Venezuela Debates National Firm

CARACAS—Venezuela wants to be ready to take over oil concessions when they expire in 1983. That's the long-range aim in setting up a national oil company, says Dr. Humberto Penaloza, Director of Petroleum Economics in the Ministry of Mines & Hydrocarbons.

The Ministry official expressed this view here last week, speaking at a series of three public forums organized by the Venezuelan Society of Engineers for open debate on the projected national oil company. Minister of Mines & Hydrocarbons Dr. Juan Perez Alfonzo joined the debate in the last two sessions.

Penaloza emphasized the need to start forming the national company now: It is not possible to foresee what the situation will be in 1983, he said. Thus, the government must have an instrument ready for exercising the functions of private oil companies.

Poor attendance at the public debate on the national company appeared to indicate more public apathy than interest.

Most of the comments made by those who did attend revealed general public ignorance and confusion about the oil industry.

Penaloza described the short-range aim as political—in answer to what he called "popular demand" that Venezuela have its own oil company.

The national company must operate on the same basis as private companies, he said, since it will serve as a pilot company to check on productivity of private oil firms.

Among the immediate objectives he listed: (1) capturing the domestic market; (2) training Venezuelan oil technicians; (3) studies of secondary recovery methods; and (4) programming national thinking on what the oil industry situation will be 40-50 years from now.

A Venezuelan official of Creole Petroleum, disagreeing with this government view, declared that a national company will only increase Venezuela's dependence on oil, rather than help diversify its economy.

Dr. Guillermo Rodriguez Eraso, economic advisor to Creole's president, said the company would only duplicate functions now being performed satisfactorily by private companies—both in supplying domestic demand and in marketing Venezuela's oil abroad.

A Communist view, also aired, is that the national company should be used to diversify Venezuela's foreign trade through barter of oil.

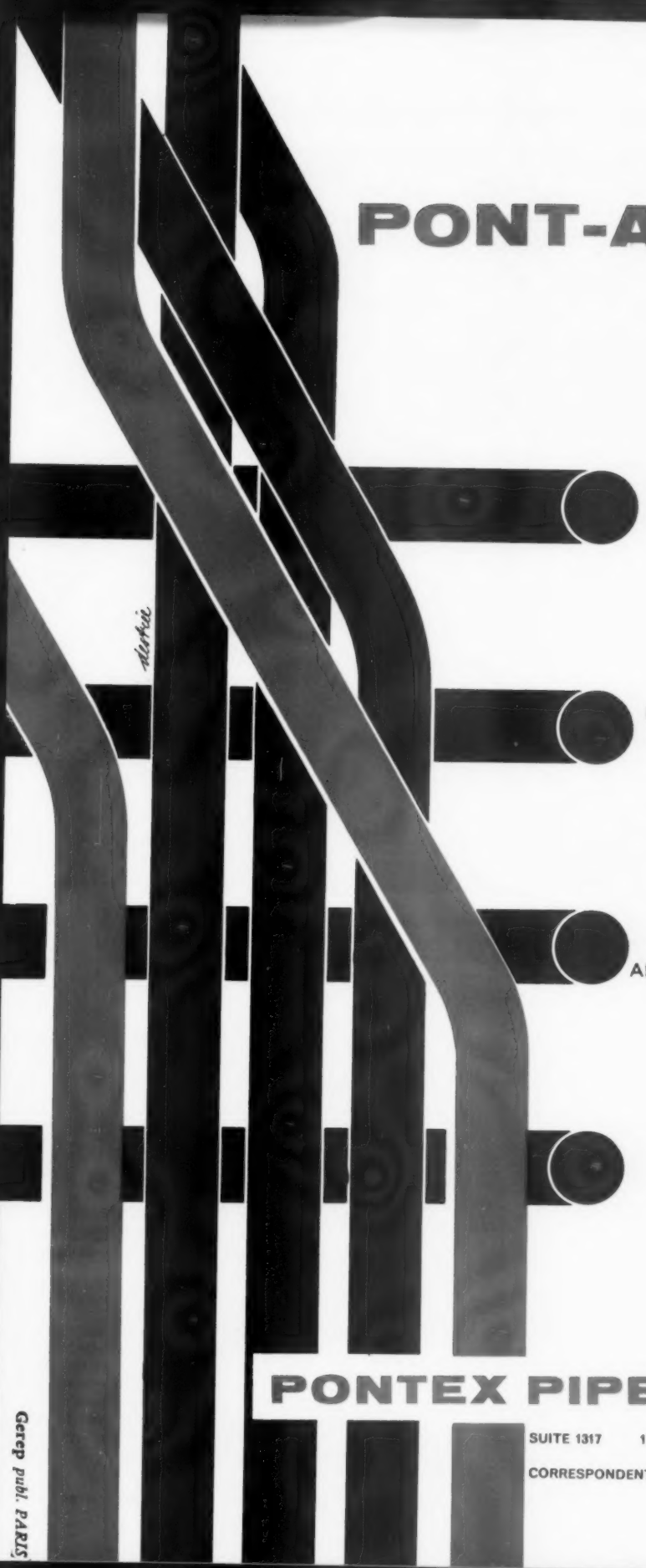
This opinion was expressed by the Director of the School of Marxist Economics, who also urged that the company should be used to keep close check on private oil firms.

At a later session, Oil Minister Dr. Juan Perez Alfonzo repeated his view that top priority of the government company would be in crude production.

There is "general agreement," he said, that Venezuela should have an integrated oil company eventually—but the question is when. He warned that refining presents serious problems, including the fact that the domestic market is already well supplied

PONT-A-MOUSSON

FRANCE



SEAMLESS PIPE AND TUBES — COMPAGNIE DES TUBES DE NORMANDIE

WELDED PIPE
DUCTILE IRON PIPE
CENTRIFUGALLY CAST — SOCIÉTÉ DES FONDERIES DE PONT-A-MOUSSON

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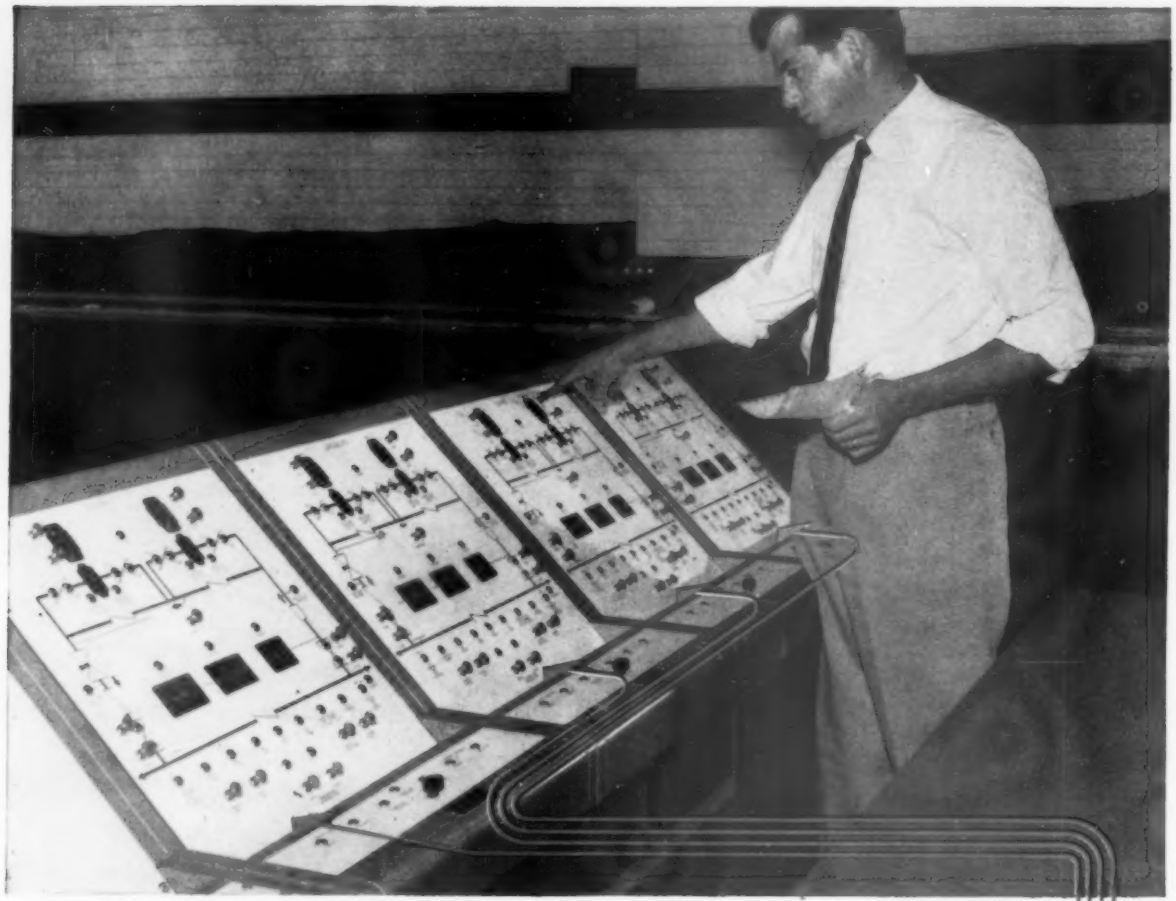
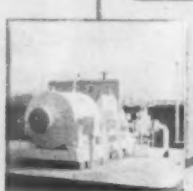
Union Centralized Transport Control pays



LOS ANGELES CONTROLLING OFFICE—The heart of the whole operation is in Los Angeles where one man at the control console can supervise the operation of four unattended pump stations 643 to 804 miles away. The operator has complete information before him showing conditions all along the line.

PHOENIX
Output Terminal

TUCSON
Output Terminal



APACHE
Unattended Booster Pump Station

REMOTE CONTROL—Either pumping unit at any one of the four booster stations can be started or stopped from Los Angeles. The sequence in opening and closing valves and starting and stopping pumps is all handled automatically and correctly by the control system.

off for Southern Pacific Pipe Lines

Push a button in Los Angeles

and four pump stations throb into action out on the desert over 600 miles away

Union Switch & Signal equipment controls operating sequence and telemeters operation of 33,000 bbl/day products line

FLEXIBILITY and fail-safe operation are the keynotes of the new pipeline system operated by Southern Pacific Pipe Lines, Inc. The line is used to transport refined products such as gasoline, jet fuel, diesel oil, etc., from El Paso, Texas, to Tucson and Phoenix, Arizona. All Centralized Transport Control equipment for four unattended booster stations was supplied by Union Switch & Signal.

REMOTE or LOCAL: All four booster stations are normally controlled from Los Angeles. Any station can be controlled locally, when desired. In any case, continuous pressure and suction readings are displayed on the console at Los Angeles and automatically recorded every fifteen minutes by an automatic typewriter. Any malfunction, at any point in the system, is indicated on the console. The equipment affected is shut down automatically and cannot be started again until the trouble has been cleared.

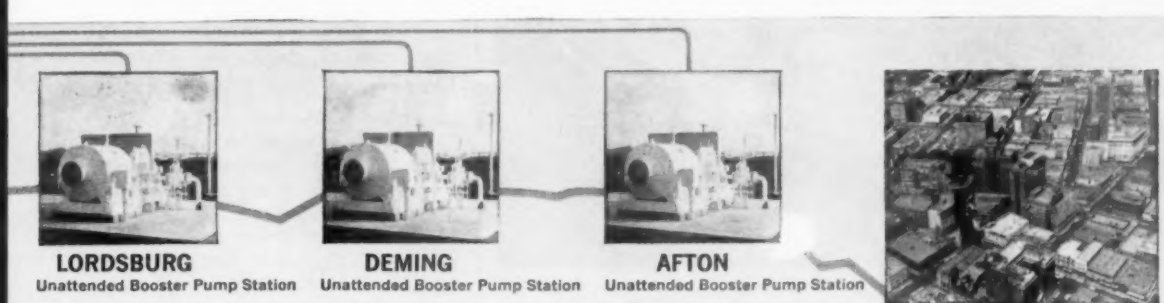
COMMUNICATION: Four telegraphic-type communications lines, owned by Southern Pacific, are used to transmit control codes to the stations and telemetered information back to Los Angeles. Each line serves one station. An additional commercial communications line serves as a stand-by for all four stations. Signals are coded to prevent noise or interference from causing faulty operation or indication.

MAXIMUM EFFICIENCY: The Centralized Control system, designed and installed by Union Switch & Signal Division of Westinghouse Air Brake Company, cuts down the chance for expensive error. It keeps the Southern Pacific Scheduling Department in Los Angeles informed, at all times, of exactly what is happening in the field. It speeds operation, adds security and reliability.

Union Switch & Signal has designed many successful custom systems for pipeline companies. And now out of that experience, it has developed standardized central control systems that cut costs, add flexibility, and save space, as well as making pipeline control extremely reliable.

"Pioneers in Push-Button Science"

UNION SWITCH & SIGNAL
DIVISION OF WESTINGHOUSE AIR BRAKE COMPANY
PITTSBURGH 18, PENNSYLVANIA



LORDSBURG
Unattended Booster Pump Station

DEMING
Unattended Booster Pump Station

AFTON
Unattended Booster Pump Station

EL PASO
Input Terminal

LOCAL CONTROL—Operation also can be controlled automatically at the pump station. Or the station can be run manually. The choice is up to the local station. But Los Angeles always knows which mode of control is being used and always receives a continuous flow of system information.

THE FUTURE—Southern Pacific Pipe Lines, Inc. can already see opportunity to make this system more automatic and more efficient. They plan, in time, to be able to let stations **adjust automatically** to proper unit operation when an upstream or downstream station goes off the line.

with products. For the time being, he said, the plan is to concentrate on drilling in "critical" areas—that is, offsetting existing fields.

He also suggested that the company may later drill in "areas of risk."

Penaloza explained that the government company may associate for exploration with private companies, which would receive a development contract if oil were found.

He emphasized that the national company will probably have sole responsibility for exploring all that remains of Venezuela's sedimentary basins under the official policy of awarding no further concessions to private firms.

An important point brought out at the forum was the necessity of capitalizing on valuable geological information that the government has accumulated from private companies, as well as the bonus value of the acreage that was assigned to the national company.

The stated purpose; to permit comparison of the efficiency and investment return of the national company with private firms.

Operation of government-owned gas pipelines will also be among the primary objectives of the national company, Perez Alfonzo said.

These lines will probably be transferred to it from the government's Petrochemical Institute. A policy on natural gas is still in a formative stage, the Minister reported.

Arab League Drops Tanker Plan

BEIRUT—The proposal for an Arab tanker company was dropped as "uneconomic" last week by the Arab League Oil Experts Committee.

The plan was one of several under discussion at the committee's meetings at the Red Sea Palace Hotel in Jiddah, Saudi Arabia. Chairman was Saudi Oil Director Abdullah Tariki.

At the same time, the Committee "adopted" the proposal for construction of an Arab-owned pipeline network from the Persian Gulf to the Mediterranean.

This proposal which was promoted by Tariki as well as the others under discussion, had previously been put forth at the Arab Oil Congress in Cairo last April. The committee recommendations will be passed to the Arab League's Economic Council at its next meeting, around the end of the year. The council's approval, in turn, would be passed to league member states as a nonbinding recommendation.

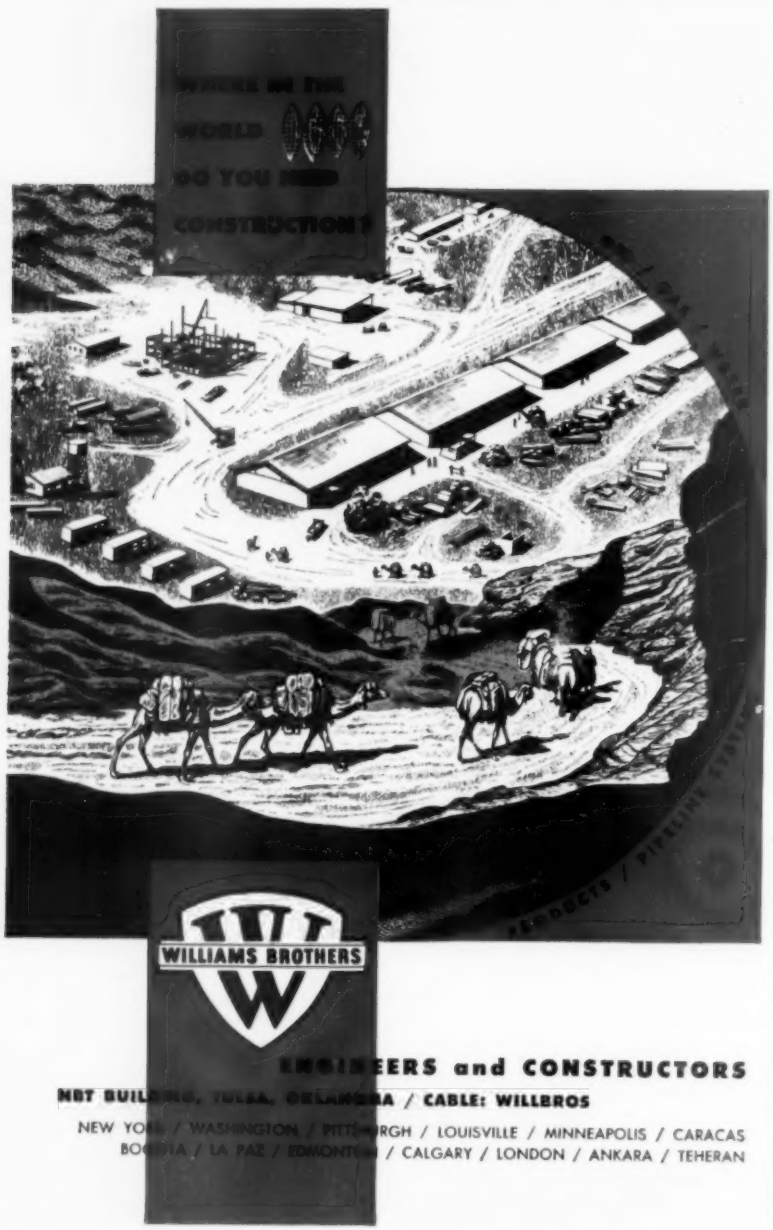
The committee "recommends" equal participation of both oil producing and transit countries in the capital of the Arab pipeline company, which would build, own, and operate the proposed network.

As a starter, however, the committee recommends only that a small study company be formed to carry out detailed engineering and financial surveys.

An Iraqi proposal for a collective Arab oil policy toward companies was referred to a subcommittee for a draft agreement.

At week's end, the proposal was still under discussion. Earlier, it was understood that a draft "model contract" had been prepared for the meeting since the policy "unification" proposal was put forth by Iraq at a meeting of the Economic Council last January.

The committee has decided to recommend Beirut as the place for the second Arab Oil Congress. This is to be held next April or October; the exact date is to be fixed later.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THE 69½ FEET THAT REACH THE MOON

Time: One hundred years ago—1859.

Place: Titusville, Pennsylvania.

Event: The first U. S. oil well "came in" at 69½ feet. And from it and its successors have come endless miracles of oil.

Today, petroleum gives us fuels that are capable of moving man from earth to the moon and beyond. Such explorations can bring new knowledge of incalculable value.

But no less certain than the conquest of space is that we will have ever better fuels and lubricants for travel on the ground, on the sea, and in the air—new and exciting products for the farm, industry and the home.

Today it is estimated that one quarter of all the money spent by U. S. industry on research is spent by the petroleum industry.

And as chemists study the endless ways to rearrange oil molecules to make useful products, we can see that the age of petroleum has only begun.

Standard Oil Company (New Jersey) ESSO

What's New / AROUND THE WORLD

Caltex and Turkey To Build Refinery

TURKEY—Caltex and the government will jointly build a 20,800 b/d refinery near Istanbul on the Gulf of Izmit.

Caltex will finance the $25.7-million plant, holding an initial 49% interest. It will operate the refinery for ten years from an on-stream date in January, 1962, then sell its share to the government at nominal value. Caltex will supply crude at competitive prices. Product output will be marketed by the Caltex distributor in Turkey.

•

CUBA—Some 35 companies holding oil concessions covering most of Cuba faced an uncertain outlook last week with the announcement that a new oil law is being drawn up.

Director of Mines Cesar Rodriquez made the announcement but declined to give details.

According to reports in Havana, it may be similar to the stiff terms of new mineral legislation announced earlier last week: reregistration of claims within 120 days; start of development within 60 days; a 5% tax on production for local use; a 25% tax on exports.

•

ITALY—The state-owned ENI group is laying the groundwork for its projected spread into marketing outside Italy, now that its plans for a refinery in Switzerland are sewed up. Marketing subsidiaries have been set up in both Switzerland and Austria, where they will start building sales outlets while initiating publicity campaigns.

•

AUSTRALIA—Efforts to sell Soviet-bloc crude in Australia have fallen flat, despite offers from local agents to deliver it for 20% less than current import prices.

Vague hints of barter operations profitable for Australia have also failed to stir interest.

•

LIBYA—Socony has become the seventh company to hit the jackpot in Libya. The No. 1 Amal, Socony's sixth Libyan wildcat (PW—Sep.18 '59,p64), last week flowed 865 b/d of 34-gravity oil on preliminary production test.

The well, 190 mi. southeast of Bengazi, is the deepest and easternmost discovery in Libya's Sirte basin. Production is from a 564-ft. sand topped at 9,841 ft. Nearest production is from Esso's Zelten field, 40 mi. to the southwest.

•

WEST GERMANY—Climbing refinery capacity will be only 81% utilized next year in the six member nations of the European Coal & Steel Community.

The High Authority for the group (Germany, France, Italy, and the Benelux nations), estimate this slide from 83% in 1959 and 85% in 1958. It also gave the following figures in production, imports, and exports for the area in millions of tons per year:

	1960	1959	1958
Refining capacity	138.0	123.3	107.7
Crude runs	111.4	102.6	91.7
Crude production	11.2	10.1	9.0
Crude imports	91.4	90.6	82.4
Product imports	10.0	9.6	8.8
Product exports	24.6	22.9	19.9

•

USSR—Russia's rising oil exports, which are expected to top 20-million tons this year, may be pushed up substantially in 1960. State Planning Chief A. N. Kosygin said last week that Russia will be able to export a "considerable" amount of "fuel".

He cited these 1960 production targets: crude, up 15-million metric tons to 144-million; gas, up at least ⅓ to more than 53-billion cubic meters; coal up only 1.7%. Oil products also are slated to rise: "Output of light products will increase 9.3%, including a 15% increase for diesel fuel," he said.

•

AUSTRALIA—Concessions totaling 5,312,000 have been awarded to Conorada Petroleum, joint operation of Continental Oil, Ohio Oil, and Amerada Petroleum. The acreage is in Queensland.

•

Wildcats in the News

COLOMBIA—The deepest test in Colombia has reached 15,556 ft. in the middle Magdalena basin. Ecopetrol, the government oil enterprise, has perforated the No. 4 Lisama and is now testing. The wildcat surpasses by 17 ft. the old depth mark held by Richmond Petroleum Co. 1 Buchado.

ZANZIBAR—BP-Shell has given up drilling on Pemba island after four shallow tests. The last and deepest was abandoned at 2,913 ft., and the rig is now being moved to British Somaliland (PW—Oct.23'59,p47).

•

Correction

The recent agreement for the use of the full line of Clark compressors in the oil and gas industry in sterling-bloc countries was between G. & J. Weir, Ltd., of Glasgow, and Clark Bros. Co. Division of Dresser A. G., not the domestic Clark company. The complete line will be sold through Clark Bros. Co. Division of Dresser (Great Britain), Ltd.

Japan to Curb Shift from Coal to Oil?

TOKYO—Japan, like West Germany, is considering a hike in tariffs on its oil imports as a further brake on the continuing shift from coal to oil, to aid the ailing coal industry.

The proposal—not yet approved by the Diet—could increase tariffs on crude, as well as fuel oil, to 10% ad valorem. Present tariffs are 2% for crude, 6½% for fuel oil.

The crisis in Japan's coal industry is attributed to government miscalculation of the trend in energy use.

As late as December, 1957, the National Planning Agency had predicted that coal would be able to hold its own against oil imports. At that time, it estimated that oil would meet 25.7% of 1962 energy needs, with coal providing 44.3%.

In fact, however, oil's share in 1959 is already higher than the earlier estimate for 1962: The agency figures oil is now filling 26.32%, with coal down to 39.97%.

Focused Logging

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meets the challenge

for greater efficiency

in oil finding

Schlumberger Focused Logging directs measurements into specific volumes of formation, giving you:

- *More reliable identification of porosity and saturation.*
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A decade of research at Schlumberger has produced five Focused Logging Methods. Each, fitted to the right borehole and formation conditions, becomes part of a true oil-finding technique. Your Schlumberger engineer is trained and qualified to recommend the proper logging program for your well.

The artist's concept of the patterns of Schlumberger Focused Logging is represented by sharply sculptured sections lifted from the formations surrounding the borehole. (1) Sonic Log (2) Proximity Log (3) Laterolog (4) Microlaterolog (5) Induction Log.

THE EYES OF THE OIL INDUSTRY

SCHLUMBERGER

Fig. 2187
Iron Body, Bronze Mounted
O.S. & Y.
Gate Valve
bevel gear.

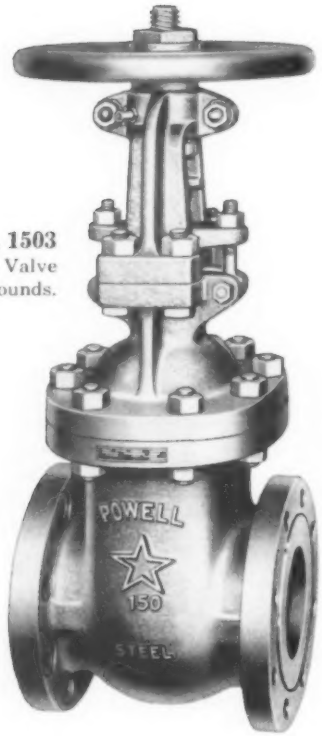

Fig. 1503
Steel Gate Valve
for 150 pounds.

POWELL-VALVES FOR

Powell was making valves when the first oil well was drilled in the United States over a century ago. So Powell Valves were ready to serve the oil industry from the very first day of its existence. And now for a century Powell has supplied the vital valves to the round-the-globe petroleum lifeline.

Powell offers valves in the greatest variety of sizes,

Fig. 9061
Cast Steel Swing Check Valve
for 900 Pounds.

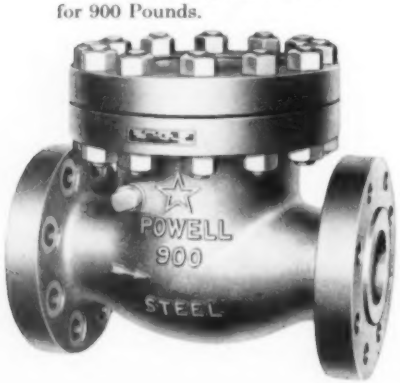

Fig. 2200
Semi-Steel Lubricated
Plug Valve.
175 Pound W.O.G.

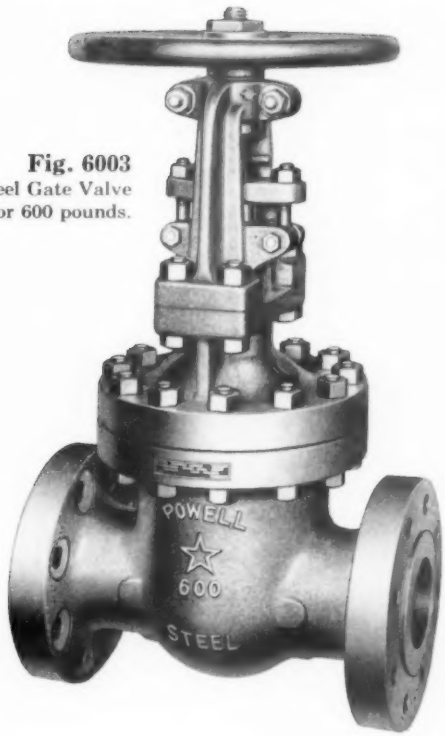

Fig. 6003
Steel Gate Valve
for 600 pounds.

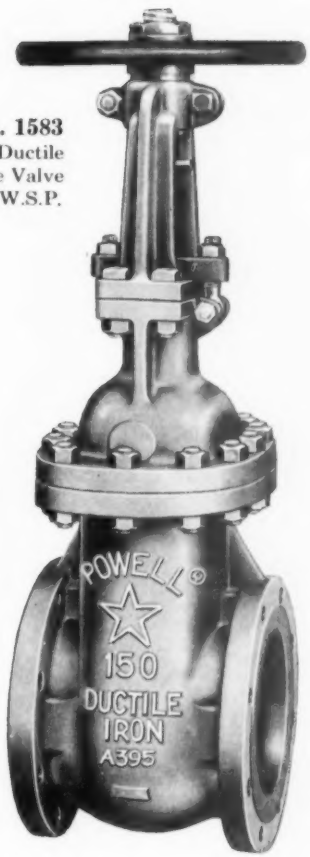

Fig. 1583
Large Ductile
Iron Gate Valve
for 150 W.S.P.

THE OIL INDUSTRY

designs, pressures, and metals to cover every valve need in oil refineries, petrochemical installations, and storage facilities everywhere in the free world.

Powell engineers and metallurgists will gladly make a special analysis of your requirements and submit recommendations to fill all your valve needs. Write directly to us . . . or consult your local Powell distributor.

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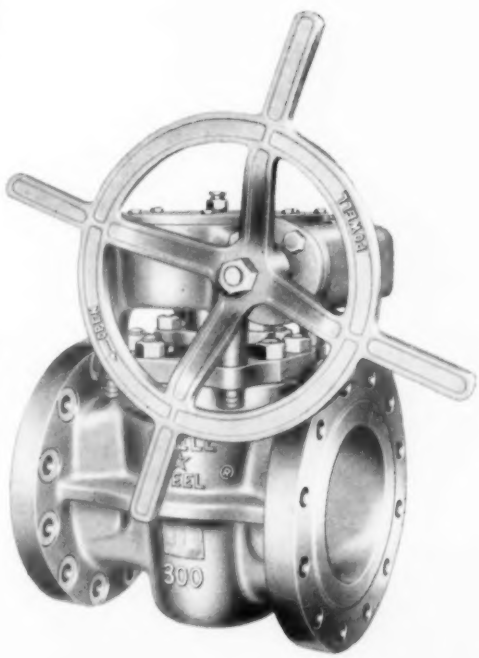

Fig. 3059G
300 Pound Steel Lubricated
Plug Valve. Gear Operated.

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Today, because of the dependable performance of the thousands of products developed by Mueller people for the water and gas industries, the constant, safe control of gas and water is taken for granted.

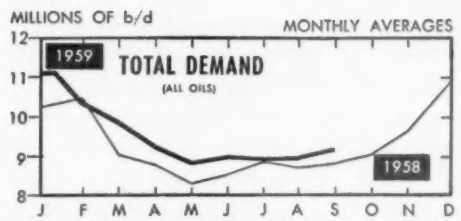
MUELLER CO. DECATUR, ILL.

Since 1857

CL-12 Drilling Machine
for cuts from 2" to 12".

PETROLEUM WEEK'S

Fingertip Figures



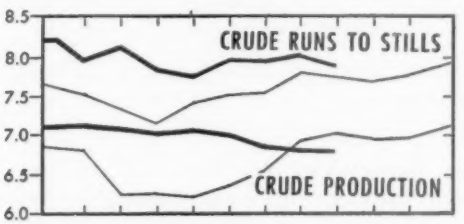
Figures for period ended October 30, except as noted

TOTAL DEMAND

Latest 4-week average	—
Year ago	9.343

DISTILLATE DEMAND

Latest 4-week average	—
Year ago	1.860

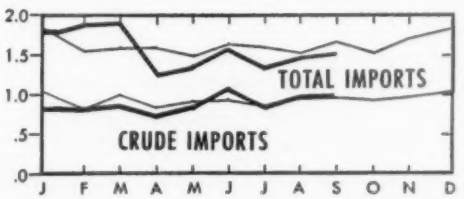


RUNS TO STILLS

Latest week	*
Previous week	7.662
Year ago	7.752

CRUDE PRODUCTION

Latest week	*
Previous week	6.875
Year ago	6.911

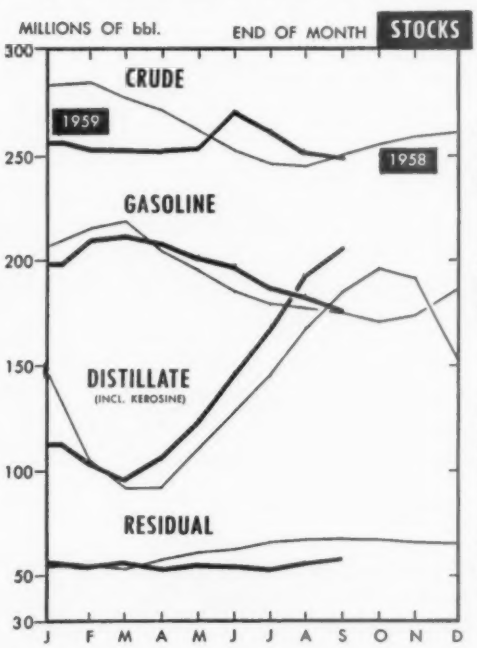


TOTAL IMPORTS

Latest week	*
Previous week	1.578
Year ago	1.924

CRUDE IMPORTS

Latest week	*
Previous week	.999
Year ago	.972



CRUDE STOCKS

Week-onded 10-24	253.1
Previous week	251.8
Year ago	255.0

GASOLINE

Latest week	*
Previous week	177.8
Year ago	170.1

DISTILLATES

Latest week	*
Previous week	214.6
Year ago	196.6

RESIDUAL

Latest week	*
Previous week	58.7
Year ago	67.0

A short course in basic economics undoubtedly would be of benefit to all oil men—particularly in view of the continued trends toward oversupply.

A good start in such an education can be had at next week's American Petroleum Institute annual meeting in Chicago, at the group session of the institute's Committee on Petroleum Statistics.

The meeting next Tuesday morning will feature a panel discussion on the long-term petroleum supply outlook, with emphasis on U.S. vs. foreign sources.

The discussion, to be moderated by Walter Levy, an economic consultant, will be led by M. E. Hubbard, an economist for British Petroleum Co., Minor S. Jameson, Jr., executive vice-president and economist of the Independent Petroleum Assn. of America, and W. E. Humphrey, vice-president, exploration for Pan American International Oil Co.

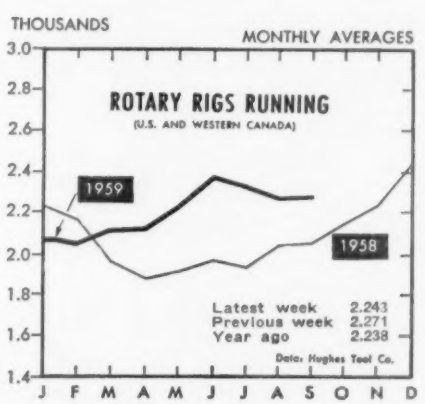
Prior to the panel discussion, William F. Butler, vice-president of the Chase Manhattan Bank, will present his views on the short-term economic outlook.

For the next few years, the problem of oversupply will be of such magnitude that the petroleum industry needs to make a complete evaluation of its operational philosophy if it is to survive without additional government controls.

The availability of supply in the U.S. and other producing areas will outstrip even the most optimistic demand estimates by a wide margin. And despite the large volume of idle capacity, there appears to be no real let-up in refinery construction in the U.S. and abroad.

* * *

*Due to the Election Day holiday, most figures for the week ended Oct. 30 were unavailable at press time.



The Market Trend

AT-A-GLANCE PETROLEUM WEEK

If It Isn't Dog Days, It's Indian Summer

This has been a real odd-ball of a season so far. Records have been set for heat waves (Oct. 1-10), and for steel and refinery strikes. The leaves were two weeks late in falling in New York. And the Oil Import Administration won't say what constitutes a residual shortage for winter.

Oil products are acting just as queerly as the signs and portents. In New York, the Port Authority arranged for its gasoline supplies, paying 0.49¢ less last week than a year ago. In Chicago, the Park District also bought gasoline, but it paid 0.495¢ higher than a year ago.

The puzzler is that the products you'd expect to be weak are firm, and vice versa. Don't be too surprised if wholesale gasoline prices move up contraseasonally in November. It's not impossible, either, that No. 2 prices may drift well into the winter without a good, solid increase.

The strangest phenomenon is that gasoline is unusually firm for this time of year at the Gulf. Today, the spot cargo prices are hard to break. In other years, discounts of 0.5¢ to 1¢ were not uncommon.

The New York gasoline barge market, dead for years, has suddenly come to life. Sales of 25,000 to 30,000 bbl. of regular-grade were closed at a fast clip, f.o.b. barges, with prices generally at a respectable 12.25¢ a gal.

Inland residual is strange, too, for Midwest and Mid-Continent markets never caught the ground swell of the long steel strike. Low-sulfur fuel oil continues firm in all areas. In Oklahoma, No. 6 of the ordinary variety is hard to find at the posted $1.40 price.

Seaboard heavy oil markets continue to defy all reason. On the West Coast, where supplies are long, some sellers have upped their cargo ideas from $1.60 to $1.85 a bbl. In New York, companies willing to pay $2.17 to $2.19 a bbl. for delivered cargoes are selling at $2.12 under the rack.

Wholesale prices are curiously at odds with retail prices in many areas, too. Texas is an example. Gulf Coast prices are firm, but retail gasoline prices in Dallas are off as much as 8¢ a gal.

After Indian Summer, it will be winter.

A Tough Bid On No. 2 Fuel:

Virgina Electric Co. was in the market for No. 2 fuel last week, and got one eyebrow-raising bid. On one 225,000-gal. requirement, a major supplier offered 1.3¢ off consumer tank car, f.o.b.

With consumer t.c. at 9.45¢, the f.o.b. bid works out to 8.15¢ at a seaboard terminal. The cargo price at the Gulf is 8.125¢.

An End Run In Arizona:

The rumor factories are milling over why a particular major is selling station properties in Arizona, one of the fastest-growing gasoline markets. A hint: It may pave the way for a merger with a company already operating there.

Spot Voyages:

The tanker market has taken a sudden turn, with spot voyages in foreign trading asked higher than term trips. Spot runs about USMC—47½% for Caribbean-New York; timecharter trading is somewhere near USMC—60%.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of November 2

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- Gasoline, 98 oct prem. . . . 12.25-13
- Gasoline, 92 oct reg. . . . 11-11.5
- Kerosine 8.625-10.375
- Heating oil, No. 2. . . . 8.125-9.875
- Gas oil, 48-52 d.i. . . . 8.375-10.125
- Fuel oil, bunker "C". . . . $2.00-2.10

Caribbean, cargoes
- Avgas, Grade 100/130. . . . 15.25
- Gasoline, 93 oct research prem. . . . 11.25
- Gasoline, 87 oct research reg. . . . 10.375
- Gasoline, 79 oct research. . . . 9.625
- Gasoline, 70-72 oct motor method. . . . 9.5
- Kerosine 8.625-8.875
- Heating oil, No. 2. . . . 8.125
- Gas oil, 48-52, d.i. . . . 8.375
- Fuel oil, bunker "C". . . . $2.00

New York Harbor, barges
- Kerosine 9.35-9.6
- Heating oil, No. 2. . . . 8.85-9.1
- Fuel oil, No. 6 . . . . $2.37-2.47

Okla-Group 3, northern shpt., bulk
- **Gasoline, 91 oct reg . . . . 10.75↓-11.75**
- Kerosine 9.5-9.75
- **Heating oil, No. 2 . . . . 8.5↑-8.75↑**
- Fuel oil, No. 6. . . . $1.40-1.80

Chicago, bulk
- Gasoline, 91 oct reg. . . . 11.5-11.75
- Heating oil, No. 2. . . . 9.125-10.85
- Fuel oil, No. 6 high sulfur. . . . 7.4-7.5

Los Angeles, rack
- Gasoline, 88 oct reg. . . . 12.15-12.65
- Diesel fuel, PS 200. . . . 8.5-11.25
- Light fuel, PS 300. . . . $2.80
- Heavy fuel, PS 400. . . . $2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3. . . . 4.5
- FOB Breckenridge, Tex. . . . 4

LP-Gas
- **Propane, Oklahoma (Group 3) . . . . 5*↑**
- **Propane, Baton Rouge . . . . 5.625↑-5.875***

Pennsylvania Lubes
- Bright stock, 25 p.t. . . . 23
- 200 vis. neutral, 25 p.t. . . . 25

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i. . . . 24-25
- Neutral, solvent, 200-210 vis. . . . 20.5-21.5

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i. . . . 24
- Neutral, solvent, 200 vis. . . . 20.5

**Effective Oct. 28.*

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130. . . . 16.5
- Gasoline, 79 oct research. . . . 10
- Kerosine 10.125
- Gas oil, 48 d.i. minimum. . . . 9.625

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, (Okla.-Kan.), 36.0-36.9. . . . $2.62-2.97
- North Dakota, 36.0-36.9. . . . 2.62-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 . . . . 3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9. . . . 2.92-3.22
  - West Texas, sweet, 36.0-36.9. . . . 3.00
  - West Texas, N. M., inter., 36.0-36.9. . . . 2.93
  - West Texas, N. M., sour, 32.0-32.9. . . . 2.71
  - East Texas, flat. . . . 3.05-3.25
  - Mirando, 28.0-28.9 . . . . 3.31
- Illinois Basin, flat. . . . 3.00
- Pennsylvania Grade, Bradford dist., flat 4.40
- California, Signal Hill, 21.0-21.9. . . . 2.22-2.32†
- North Louisiana-Arkansas, 36.0-36.9. . . . 2.77-3.02
- Wyoming, sweet, 36.0-36.9. . . . 2.85-2.90
- Wyoming, sour, 32.0-32.9. . . . 2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.) $2.38
- Leduc-Woodbend (Alta.) 2.53
- Redwater (Alta.) 2.42
- Steelman A (Sask) 2.435
- Virden (Man.) 2.31

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 47.0-47.9, Tucupido. . . . $3.34
- San Joaquin, 41.0-41.9, Puerto la Cruz. . . . 3.10
- Oficina, 35.0-35.9, Puerto la Cruz 2.78-2.80
- Tia Juana, Medium, 26.0-26.9, Amuay 2.30
- Bachaquero, flat, Las Piedras 1.73-1.88
- Tarra, 38.0-38.9, San Lorenzo. . . . 2.83
- Lagunillas Heavy, flat, Cardon. . . . 2.10

†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura. . . . $1.90
- Safaniya, 27.0-27.9, Ras Tanura. . . . 1.50
- Iran, 34.0-34.9, Bandar Mashur. . . . 1.86
- Iran, 34.0-34.9, Abadan. . . . 1.81
- Iraq, 35.0-35.9, Fao. . . . 1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi. . . . 1.67
- Qatar, 41.0-41.9, Umm Said. . . . 2.05
- Neutral Zone, Burgham, 23.5-24.4, Mina Saud. . . . 1.51
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud. . . . 1.38

Middle East, Eastern Mediterranean
- Arabian, 34.0-34.9, Sidon. . . . $2.27
- Iraqi, 36.0-36.9, Tripoli, Banias. . . . 2.31

Far East, Cargoes FOB Lutong, Sarawak
- Seria Light, flat. . . . $2.57

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U.S. Gulf-New York, clean. . . . (USMC—22½%) $2.21
U.S. Gulf-New York, dirty. . (USMC—30%) $2.00↑
NWI-USNH, dirty. . . . . (USMC—47½%) $1.44↑
NWI-UK/Cont., dirty . . . . . (Scale—52½%) 15/5*
Persian Gulf-UK/Cont., dirty. . . . . (Scale—65%) 23/3*
Persian Gulf-USNH, dirty. . (USMC—69%) $3.94↑

**Sterling.*

Odds Better for Katy's Latest Line

Efforts by the Missouri-Kansas-Texas R.R. to build a products pipeline from West Texas to the Upper Midwest reportedly are meeting with more success than did its now-defunct plan for a line to the Northeast.

In 1957 the Katy, together with the New York Central R.R., announced plans for a pipeline from Houston to upstate New York, with spurs to Detroit, Pittsburgh, and possibly New York City (PW—Oct.18'57,p12).

The line was to be built along the railroads' rights of way.

Attempts to get enough throughput commitments to justify construction failed, however.

Last September, the railroads abandoned their plan. At the same time, however, Katy announced a plan to build a products pipeline on its own from West Texas to the Upper Midwest, via the Mid-Continent, if demand for such a line existed (PW—Sep.25'59,p80).

The line would not use the Katy's right of way. In fact, it would cross it only once—near Beaver, in the Oklahoma panhandle.

The line would extend 500 mi. from Midland, Tex., to McPherson, Kan., where it would fork to Madison, Wis., (550 mi.) and Minneapolis-St. Paul (450 mi.). Propane, butane, and natural gasoline would be shipped as far as McPherson. The forks would carry only propane.

The natural gasoline and butane would go to refineries in central Kansas, near McPherson, to be used for petrochemicals and blending.

The propane would be earmarked for Plains States and Upper Midwest domestic and industrial heating markets.

Diameter of the mainline is tentatively set at 12 in. The east spur would probably telescope from 10 to 8 to 6, and the west, from 8 to 6.

Proposed tariffs from West Texas are: to McPherson, 50¢ a bbl.; to Minneapolis-St. Paul, 94¢; and to Madison, $1.00.

Katy says it has shippers' commitments "in writing" for 60% of the minimum throughput of 32,000 to 35,000 b/d that it needs to build the line.

Another 15% of the minimum is promised, though not in writing, according to a top Katy official. And negotiations are in final stages with a major producer for the other 25%.

The official wouldn't name the shippers, nor say what proportion of throughput each product would comprise.

Two companies — Tuloma Gas Products Co. and Texas Natural Gasoline Co.—confirm having signed letters of intent with Katy, and it's understood that several other firms have signed similar letters.

Both companies describe the letters as "preliminary" in nature.

A letter of intent doesn't legally bind a company to ship through the line, of course. It's an expression of intent to use the line, if subsequent economic conditions make it profitable to do so.

A spokesman for Texas Natural says that the amount of products it would ship through the line depends on what route is taken.

Tuloma's letter specifies that it could send about 2,000 b/d through the proposed line.

Neither company will say what products would be shipped, if a final decision is made to use the line.

Texaco Inc. is now completing a study of market demand in the area to be served by the line, and will use the study for a decision on whether to ship through the line.

"We're definitely interested in the line," says a company spokesman. He adds that a decision should be reached within 30 days.

Negotiations are also under way between Katy and Skelly Oil Co.

An industry source says, however, "There's no way of telling which way Skelly will jump yet."

At least one company, after studying the proposed line, has definitely decided not to use it.

Cities Service Oil Co., which also has been approached by Katy, "is not interested," a spokesman says.

The company feels that its own products pipeline to Chicago, plus its fleet of tank cars, are adequate to meet its transportation needs.

Robert E. Thomas, Katy's executive committee chairman, claims that a throughput of 32,000 to 35,000 b/d would be sufficient to finance construction of the entire line, including main stem and forks.

"And I wouldn't be surprised to see 60,000 to 70,000 b/d in the base leg in five years," he says.

Katy is counting on capturing 40% of the market for LPG and natural gasoline shipments in the area.

Thomas says that Katy wants to

THIS CHIKSAN MARINE LOADING SYSTEM INCREASES FLOW CAPACITY, REDUCES OPERATING COSTS FOR UNION OIL

What you see in the photo above is a Chiksan Marine Loading System on a new multi-million dollar supertanker terminal at Los Angeles operated by Union Oil Company of California. Designed to speed unloading operations, this Chiksan System has five 12 inch by 52 foot arms, three normally in crude oil and two in bunker oil service.

Each arm is capable of handling 15,000 B/H of refined product and up two 11,000 B/H of crude; a greater capacity than any method previously used by Union Oil. **Translated into faster turn around time,** this increased flow capacity coupled with other savings through such factors as improved safety conditions results in significantly lower operating costs for Union Oil.

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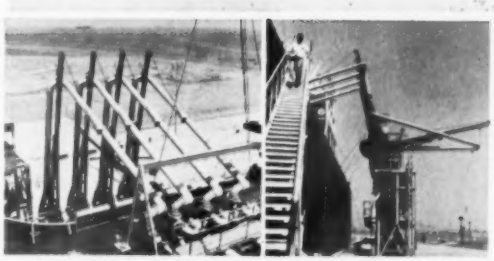

100-105 PSI ACROSS THE RAIL is safely handled by the Chiksan all metal arm. In addition, smooth interior diameter reduces turbulence permitting more efficient pumping flow.

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use the southern portion of the line to ship products to refineries in McPherson, Augusta, and El Dorado.

The propane market staked out by Katy includes an area extending roughly 150 mi. eastward and westward from the line's two spurs (map).

Katy based its decision to try to get backing for the line on a study of market potential, which "shows there's a lot more business than 32,000 to 35,000 b/d," Thomas says.

Asked for his forecast of market growth, he would only say, "It's big, but I don't think we're prepared to publish that."

He added that his figures show that "propane is the fastest growing product in the petroleum industry today."

Thomas estimates that propane would comprise about two-thirds of the line's total throughput.

It would be distributed from takeoff points by rail and truck. Railroad distribution terminals are planned at the ends of each fork.

Other terminals are also planned, but their locations haven't been plotted yet.

A heavy network of products pipelines already crosses the area Katy plans to serve.

Among the companies with products lines crossing the Mid-Continent into the Midwest are Standard Oil Co. (Ind.), Great Lakes Pipe Line Co., Phillips Pipe Line Co., and Sinclair Pipe Line Co.

CARRYING TEXAS AND LOUISIANA NATURAL GAS TO THE MARKETS WHERE THE MOST PEOPLE ARE

New Hudson River crossing, part of Transco's $100,000,000 construction program for 1959.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION

What's New / IN PIPELINES

Tennessee Gas Transmission Co.'s application to boost its mainline capacity by about 56-million cf/d is drawing opposition from several customers who fear a possible big rate boost.

At a Federal Power Commission hearing last week, Consolidated Edison Co. of N. Y. and Consolidated Gas System, Inc., said TGT's plan to spend about $15-million for new facilities foreshadowed a substantial rate hike. They were told, however, that the proposed rate increase to pay for the expansion would be the subject of a separate hearing.

Columbia Gas System, Inc., another customer, claimed that TGT's method of prorating the cost would charge it unfairly for benefits that companies farther north would derive from the expansion.

•

Construction of the northernmost leg of a proposed natural gas pipeline from Alberta to San Francisco has been approved by the Alberta government.

The Canadian portion of the line will be built by Alberta Gas Trunk Line Co. The approved section extends from the Berland River in west central Alberta to Crows Nest Pass, on the Alberta-British Columbia border. A second section will run from that point to Kingsgate, B. C., on the Idaho border.

The petition to export about 600-million cf/d through the line, however, is still pending before the National Energy Board. Petitioners are Alberta & Southern Gas Co., Ltd., and West Coast Transmission Co.

A decision is also being awaited from the U. S. Federal Power Commission on a proposal of Pacific Northwest Pipeline Corp. and Pacific Gas Transmission Co. to build the U. S. leg and import the gas (PW—Aug.28 '59,p37).

Alberta Gas says it won't start construction until both export and import permits have been granted.

Cost of the Alberta section of the line, including laterals, is estimated at $103-million.

•

An $8,653,700 annual gas rate increase by Panhandle Eastern Pipe Line Co. has been suspended by the Federal Power Commission.

The hike would affect 61 utility customers in Kansas, Missouri, Indiana, Ohio, and Michigan.

Panhandle says its proposed boost is made necessary by a rate increase by its subsidiary, Trunkline Gas Co., plus higher wages and taxes.

•

South Texas Natural Gas Gathering Co. has been authorized by the Federal Power Commission to extend its Southwest Texas gathering system.

The company will build a new pipeline from Kelsey Field, Brooks County, to Rodrique Field, La Salle County, where it will deliver gas to Transcontinental Gas Pipe Line Corp.

Mr. E. L. Brown, Supt. of B & O Railroad's Floating Equipment, says:

"Bituplastic® No. 28 has lasted for 2 years where other coatings failed in 6 months"

Car floats of the Baltimore and Ohio Railroad are a familiar sight around New York's harbor. And the man responsible for keeping these "floating freight trains" on the go is Edward L. Brown.

Up until two years ago, Mr. Brown was plagued by a continuing maintenance problem: salt water and brine drippings from refrigerated cars were playing havoc with the steel decks of the car floats. Many coatings had been tried: even pavement-type surfaces were applied, but none gave more than 6 months' service.

Mr. Brown says, "Frankly, I was skeptical when the Koppers salesman suggested Bituplastic No. 28, a specially designed coating for outdoor exposure. But it really has stood up under our tough service. Car floats given two roller coats of Bituplastic No. 28 in 1957 have required no maintenance to date."

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New Fuel System Sparks Modern Design

A new concept in fuel-delivery equipment may challenge the future of the conventional gasoline pump, according to Bowser, Inc., its developer.

While other pump manufacturers have either been making their pumps shorter or adding TBA displays to their designs, Bowser has come up with a totally new approach to gasoline delivery, which could eliminate the conventional vertical pump.

What Bowser has done, in effect, is to split up the basic elements of the gasoline pump—the hose, the grade selector, the computer dials, and the computer mechanism—so that they can be located wherever in the service station they may be of most benefit.

For the designer of service stations, says Bowser, this flexibility "should spark the imagination" and lead to "a variety of improvements in the design and construction of service stations" (pictures).

The new concept in pump construction stems from an application of electronics to the measurement of fuel flow.

To record the number of gallons of fuel being dispensed, Bowser has applied to its delivery system a special meter. This "Pottermeter," designed in cooperation with Potter Aeronautical Corp., Union, N. J., "converts the fuel quantity flow into the movement of electrons," says Bowser.

The Pottermeter employs a magnetized turbine (picture, page 125), through which the fuel is directed, to measure fuel flow. Each revolution of the turbine produces electrical impulses.

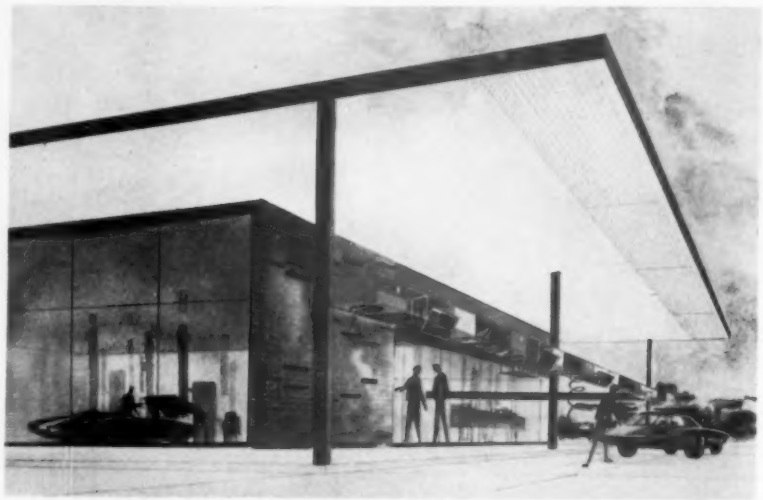
These impulses, representing delivery data, can be carried anywhere in the station by ordinary wiring.

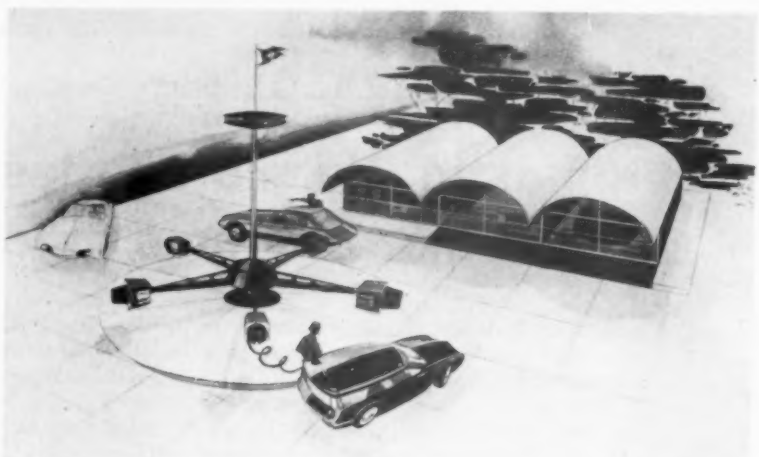
Oil industry executives interviewed by Petroleum Week find the idea of electronic dispensing systems to be "promising," "interesting," and "representative of things to come."

A spokesman for Esso Standard Oil Co. admires the "flexibility" that the system affords station designers.

He remarks that, although the system may not be universally applicable, it is a welcome change from gadgetry.

A spokesman for another marketer says that his company is very interested in the Bowser system. "The oil companies have been asking for something like this since 1940," he says. "Bowser apparently is the first to take over the job of developing it themselves."





STATION DESIGN may be radically changed with the application of Bowser's system. Pump islands may be entirely replaced with overhead hoses and computer faces (above), or the computer face may be brought directly in front of the motorist (below).

One of the chief advantages claimed for Bowser's Modular Electronic Fueling System is that it permits designers to place computer dials wherever they may be most easily observed by motorists.

Motorists need not crane their necks, straining to read the faces on gasoline pumps, says a Bowser executive. The computer dials can be placed in front of the driver, even though the station attendant is servicing his car with a pump located to the rear.

To accommodate designers, Bowser has also developed a new method of presenting gallon and price information, which "permits the figures to be displayed in larger, more legible characters which are visible at any distance."

The new computer face does not use conventional dials. Instead, it employs metal cards which are "flipped" from one number to the next as gasoline is dispensed.

Bowser executives expect some hesitancy on the part of motorists in accepting this separation of pump from computer face.

But just as motorists accepted the disappearance of the glass-top gasoline pumps, they will accept the Modular

Electronic Fueling System, Bowser believes.

Another advantage that is seen in the new system is its ability to transfer accounting information instantaneously to any remote point.

Because the electronic signal generated in the Pottermeter can be carried anywhere over simple wires, station managers can receive instant data on sales right in the station offices, Bowser executives say.

"Simple totalizers of small size can be installed directly at the desk," says Bowser. "They can also be installed at a central control point for several stations, so a single bookkeeper can keep central records for more than one station."

A Bowser executive told Petroleum Week that he envisions centralized offices in large oil companies receiving sales information instantaneously—right from the pumps—of all their service stations. Though this is admittedly far in the future, the spokesman says, "we have at least made such things possible."

The system also promises greater efficiencies in credit-card accounting and pump-island transactions.

Printed tickets showing each transaction may be designed for the system, says Bowser. Furthermore, credit-card imprinting can be added to the printed ticket operation, speeding up the accounting of credit sales.

KEY to Bowser's fueling system is a Pottermeter, which translates the flow of fuel into electrical impulses.

The system can be adapted to coin operation or multiple blending of gasolines.

A single electronic computer-indicator (located possibly right on the pump handle) can be switched from one circuit to another, Bowser says. It could be set up to permit coin operation, or to select the grade for multiple blending.

Both quantity and price recording would be automatically adjusted with the selection of the grade of gasoline.

The system can also be modified to dispense fuel by predetermined amounts.

Thus, while the system delivers fuel up to a desired number of gallons or price, the attendant is free to service the car or promote motor oil or some other product, Bowser says.

Veeder-Root Inc. has already developed a pump that will deliver predetermined amounts (PW—Apr.10 '59,p45).

There is no basis for comparing the costs of Bowser's system with those of conventional equipment, the company says.

For example, Bowser explains, the 6-ounce electronic meter replaces a 30-pound meter, occupies only about 6 cu. in. of space, and is maintenance-free.

Other cost savings, the company claims, are achieved through speedier push-button operation and swifter credit-card accounting.

Since the modular "building block" may be fitted to the requirements of individual companies, a Bowser executive says, "costs will depend on specifications."

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North Carolina Fair Trade Hit

North Carolina's attorney general, Malcolm B. Seawell, has called for the repeal of his state's 22-year-old fair trade law.

Speaking before a Lion's club group in Dunn, N.C., last month, Seawell reported some of the results of a study of gasoline prices he has been making since August. The study was prompted by the complaints of service station dealers in North Carolina.

Any action on the fair trade law will have to wait until February 1961, Seawell noted, when the state legislature meets again.

Seawell charges that fair trading companies, among others, have been selling their branded products to each other, and therefore have no right to fair trade their gasoline.

The state fair trade law "presupposes that the suppliers have a product that is their own," says Seawell. But certain oil company representatives in North Carolina have admitted that, in time of need, oil companies buy from each other, Seawell says.

Under the state's fair trade law, a supplier must market his own distinctive product under his own distinctive brand, Seawell insists.

Chemical analysis of gasoline marketed in Raleigh has shown, Seawell reports, that there is "no material difference in the octane ratings of regular gasoline, whether sold by major firms or the so-called independents."

Seawell also charges that fair trade has caused local price wars to become state-wide price disturbances.

Citing the price war in Charlotte, Seawell notes that when the fair trading companies dropped their prices to meet competition in that city, they, of course, also lowered their prices throughout the state. This caused the price war in Charlotte to spread to other cities in North Carolina, Seawell says.

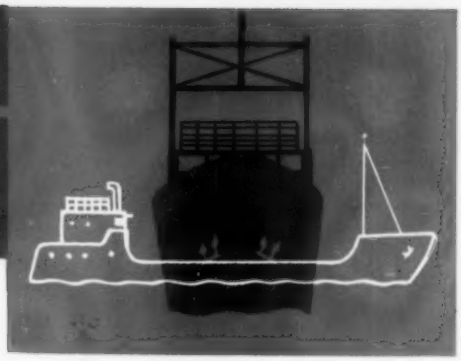
Seawell is "exploring the possibility" of bringing court action against oil companies that have allegedly used fair trade to fix prices illegally.

In a few weeks, Seawell told PETROLEUM WEEK, he will decide whether or not to seek cease and desist orders to stop oil companies from using fair trade "as a guise" under which they can fix prices.

Meanwhile, Seawell says, he will continue his investigation of gasoline pricing practices.

SHIPPING FACT SHEET No. 1

A VALUABLE SERVICE TO EXECUTIVES
IN ALL PHASES OF THE OIL INDUSTRY



How You Can Cut Shipping Costs ...and Speed Up Deliveries

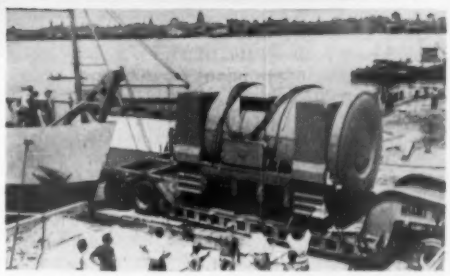
West India Line has saved many thousands of dollars for Petroleum and Construction companies through its specialized freighting to the Caribbean, Central and South America.

Complete process plants – cracking towers – drill rigs – heavy equipment–liquid cargoes–all can be brought close to waterfront plant sites with West India's new shoal draft vessels designed to discharge on beaches as well as at dockside.

Shipment via West India Line services allows for elimination of expensive export crating.... It avoids overland transportation and assembly costs at points of destination.

The shipper should not overlook... Warehouse and Yard Storage at no charge... Crane Service... Equipment Assembly Service... Low Boy Service... Full Insurance Coverage.

For additional information on West India's "Science of Shipping" write or call our New York or Miami office.



Diesel Engines loaded on landing craft at Havana

Engines are brought right up to El Palito Beach, Venezuela, a few hundred yards from the plant

west india line *shipping*

WEST INDIA SHIPPING COMPANY, INC.

777 BISCAYNE BLVD. • MIAMI 32, FLA. • FRanklin 9-6453

•

17 BATTERY PLACE • NEW YORK 4, N.Y. • WHitehall 3-5650

VICE-PRESIDENT, CHAMBER OF COMMERCE
James Duncanson (left) of Byron, Michigan (with L. W. Small, Village President)
Business_____?

What's their line?

...Here are seven outstanding citizens. Can you guess the business each is in?

Banker? Doctor? Architect? Editor? All wrong! But here's a hint. They are all in the same business. And you will find them occupying positions of responsibility and trust in communities throughout the Midwest and Rocky Mountain states.

Give up? They are all Standard Oil dealers.

We wish we could show you all the Standard Oil dealers who are doing distinguished civic jobs for their communities. But we can't. The total actually runs into the thousands.

These seven dealers are representative of those thousands who serve their friends and neighbors both on and off the job.

They are independent businessmen who have won success in a highly competitive business with their friendliness and helpfulness. And, as members of Standard Oil Dealer Advisory Councils, they give us their expert advice on motorists' needs so we can further improve our service to you. Overall, there are 54 dealer advisory councils. They meet regularly with Standard's management to discuss ways to give you better service.

Standard Oil dealers have grown and prospered as the demand has increased for Standard's high-quality, always-dependable products. Here in mid-America, where you see the familiar Torch and Oval sign, they serve far more motorists than do any other group of dealers.

We think it is no coincidence that so many Standard Oil dealers are outstanding citizens, looked to for leadership in their own communities... because their kind of service is never bounded by dollars or hours.

WHAT MAKES A COMPANY A GOOD CITIZEN?
We all know what makes a *person* a good citizen. One measure is his contribution to the stability and progress of his community. The same yardstick can be used for companies, too. *If a big company's policies help small, independent businessmen to grow and prosper,* that company is fulfilling one of the most important duties of a good business citizen.

SCHOOL BOARD MEMBER
Dyas Neill of of Ft. Morgan, Colorado
Business_____?

BOY SCOUT COUNCIL LEADER
R. H. Mohnsen of Michigan City, Ind.
Business_____?

YMCA BOARD MEMBER
Herb Jensen of Ottawa, Illinois
Business_____?

SCHOOL BOARD MEMBER
Bill Reed of Spirit Lake, Iowa
Business_____?

VILLAGE TRUSTEE
Charles Donahue, Whitefish Bay, Wis.
Business_____?

PRESIDENT, CHURCH MEN'S CLUB
Larry Gaida of Duluth, Minnesota
Business_____?

1959 — 100TH ANNIVERSARY OF THE OIL INDUSTRY — 70TH ANNIVERSARY OF STANDARD OIL CO.

STANDARD OIL COMPANY
(INDIANA)

STANDARD
THE SIGN OF PROGRESS... THROUGH RESEARCH

What's New / IN MARKETING

General Motors has developed a 97-horsepower diesel engine especially suitable for taxicabs.

A spokesman says that GM's diesel is immediately available, and that extensive taxicab installations will be made following completion of "carefully-controlled cost and performance studies," which are now in progress.

General Motors had long been expected to build an engine to compete with the Perkins diesel engine, which is now being installed in Plymouth taxicabs (PW—Jun.19'59,p92).

Last week, a taxicab operator in Detroit reported that he is averaging 19.3 mi. per gal. with his 19 Perkins diesel taxicabs, compared with 9.5 for conventional cabs.

Despite their economical application to taxicabs, diesel engines are not suitable for passenger cars, according to GM, since the economy and longer-life features of the diesel pay off best in continuous 12- to 24-hour-a-day operation.

•

A price war in Pueblo, Colo. has forced Frontier Oil Refining Co. to close four out of five salaried outlets there.

At the remaining outlet, Frontier has reduced the price of regular gasoline to 6.9¢ per gal. and premium to 8.9¢, ex taxes.

Meanwhile, in advertisements appearing in two Pueblo daily newspapers, M. H. Robineau, Frontier president, has charged that the price war is "a fight for power by two multimillion-dollar companies, and they don't care who gets hurt."

•

Tidewater Oil Co. expanded into North Carolina last week with the acquisition of Coast Oil Co.

Through the purchase, Tidewater acquired 29 retail outlets, more than 50 commercial and farm accounts, and a new warehouse and bulk plant at Elizabeth City, N. C.

•

The average octane rating of premium gasoline remained unchanged in October, but regular showed an increase of +0.1 octane number from September.

Premium ratings averaged 99.2-octane, while regular moved to an average of 92.2 octane, according to Ethyl Corp.

Superpremium gasoline averaged between 100.3 and 102.6.

•

Engineering

Several oil companies are reportedly taking a close look at "Readatron," a credit-card system that promises to expedite credit-card invoice handling.

Developed by National Data Processing Corp., the system includes a "converter" that "reads" invoices and, at the same time, punches holes in IBM cards at the rate of 1,600 cards per hour. The holes correspond to customer account numbers and purchase amounts, and, with optional equipment, will also indicate the card's expiration date and station identification numbers.

A special "recorder," designed to prepare invoices for the "converter," replaces the conventional credit-card imprinter at the service station.

Cost of the "Readatron" is approximately $10,000.

OIL MEN OF ANY SIZE

Big ones and small ones, veterans and beginners have come to the Whitney since the first days of Louisiana oil for help in the production, refining and marketing of oil.

Whitney

NATIONAL BANK OF NEW ORLEANS

Established 1883 • Member F.D.I.C.

DEPT/Personals

G. D. (Dan) ALMEN, JR., vice-president and manager of the Midland division of Sinclair Oil and Gas Co. transfers to Sinclair Oil Corp., in New York, where he will help direct its worldwide exploration and production activities. He will assist **Fred A. Bush,** vice president of Sinclair Oil and vice-president and director of its subsidiary, Sinclair Oil & Gas. **Robert L. Elston,** formerly assistant manager of the Midland division, succeeds Almen as vice-president and division manager.

A. B. Macaulay

G. D. Almen, Jr.

A. B. MACAULAY succeeds **R. T. Cox** as manager of the Rocky Mountain region of Atlantic Refining Co.'s domestic crude production department, in Casper, Wyo. Cox will become manager of the West Texas-New Mexico region, in Midland, when **Niles B. Winter,** the present manager, retires in May, 1960. Macaulay is currently manager of the Oklahoma-Kansas region, in Tulsa, which will combine with the Dallas-Eastern region in January. This new production area will be known as the Mid-Continent region and its headquarters will be in Dallas. **H. C. Harris, Jr.,** now manager of the Dallas-Eastern region, has been named manager of the new region. **Tom C. Frick** continues as manager of the South Louisiana region, which will include the Jackson (Miss.) district and exploration offices after January. The Jackson office has been a part of the Dallas-Eastern region.

W. A. PATTERSON, JR., is the new district superintendent for Champlin Oil & Refining Co.'s Canadian operations, with offices in Calgary. Patterson, who has been with Champlin for three years, has held assignments in the United States and Canada. Before that, he was with Pennant Drilling Co., in Calgary. **Andrew J. Olah** is the new district production clerk in Champlin's Calgary office. Olah has been with the company for the past two years.

WILLIAM B. McNULTY is the new Midwest polypropylene-film sales representative for AviSun Corp., with offices in Chicago. He was formerly associated with Triangle Package Machinery Co. and American Machine & Foundry Co. AviSun was formed in February by Sun Oil Co. and American Viscose Corp.

R. D. WHITE has joined Southern Minerals Corp., Corpus Christi, as chief geologist. He has been chief geologist for Plymouth Oil Co. at Sinton, Tex., since 1955. Before that, he was assistant chief geologist in New Orleans for the California Co.

R. D. White

A. V. Fraser

A. V. (Red) FRASER has been promoted to assistant general manager of marketing for Standard Oil Co. (Ind.), in Chicago. He was formerly Eastern region manager, with offices in Detroit.

DR. J. F. MASON has joined Continental Oil Co.'s foreign department as staff geologist, with headquarters in New York. He has been exploration manager for Standard-Vacuum Oil Co. in Karachi, Pakistan, since 1956.

I. J. REED moves up to manager of the exploration department for Arabian American Oil Co., in Dhahran, Saudi Arabia. Reed, with Aramco in Dhahran since 1947, was most recently assistant manager of the exploration department. At the same time, **Raymond K. Devenney** was promoted to chief accountant in Aramco's general accounting department, in Dhahran. He has been on special assignments in Dhahran since early this year. Before that, he was chief accountant for the company in New York.

R. G. SANDERS has been named general manager of southwestern manufacturing for Mobil Oil Co., domestic operating division of Socony Mobil Oil Co. He was formerly vice-president in charge of refining and a director of Magnolia Petroleum Co., a Socony affiliate that is being absorbed by the parent company. Sanders will continue to be located at Magnolia's Beaumont (Tex.) refinery.

JOHN B. NUNN has resigned from Sunset International Petroleum Corp., Denver, to become a broker for oil and gas leases there. Nunn was most recently Mid-Continent area land manager for Sunset International. He was vice-president and director of McRae Oil & Gas until it merged with Sunset International last year.

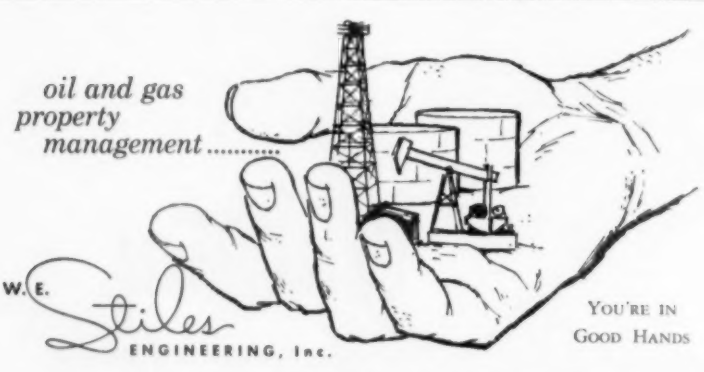
CLAUDE WILD, JR., has been named legislative representative in Washington, D. C., for Gulf Oil Corp. He has been counsel for the Mid-Continent Oil & Gas Assn., at its Washington office.

C. Wild, Jr.

T. N. Law, Jr.

T. N. LAW, JR., has been appointed vice-president in charge of intercompany and public relations for Falcon Seaboard Drilling Co., Tulsa. He will continue with his duties as landman in the exploration department. Law joined Falcon Seaboard in 1953.

ALBERT F. BARRETT is manager of producing, and **ARNE NIELSEN** is manager of exploration, for the new Denver exploration and producing division of Mobil Oil Co., domestic operating division of Socony Mobil Oil Co. Barrett joined General Petroleum Corp., now the West Coast division of Mobil Oil, as a geologist, in 1939. He has been manager of General Petroleum's Rocky Mountain exploration division, and manager of producing for the old Pegasus division. Since 1954, he has been vice-president and general manager of Mobil Producing Co., Billings, Mont. Nielsen has been chief geologist for Mobil Oil of Canada, Ltd., in Calgary.



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TEIA authorizes hospital and medical treatment . . .

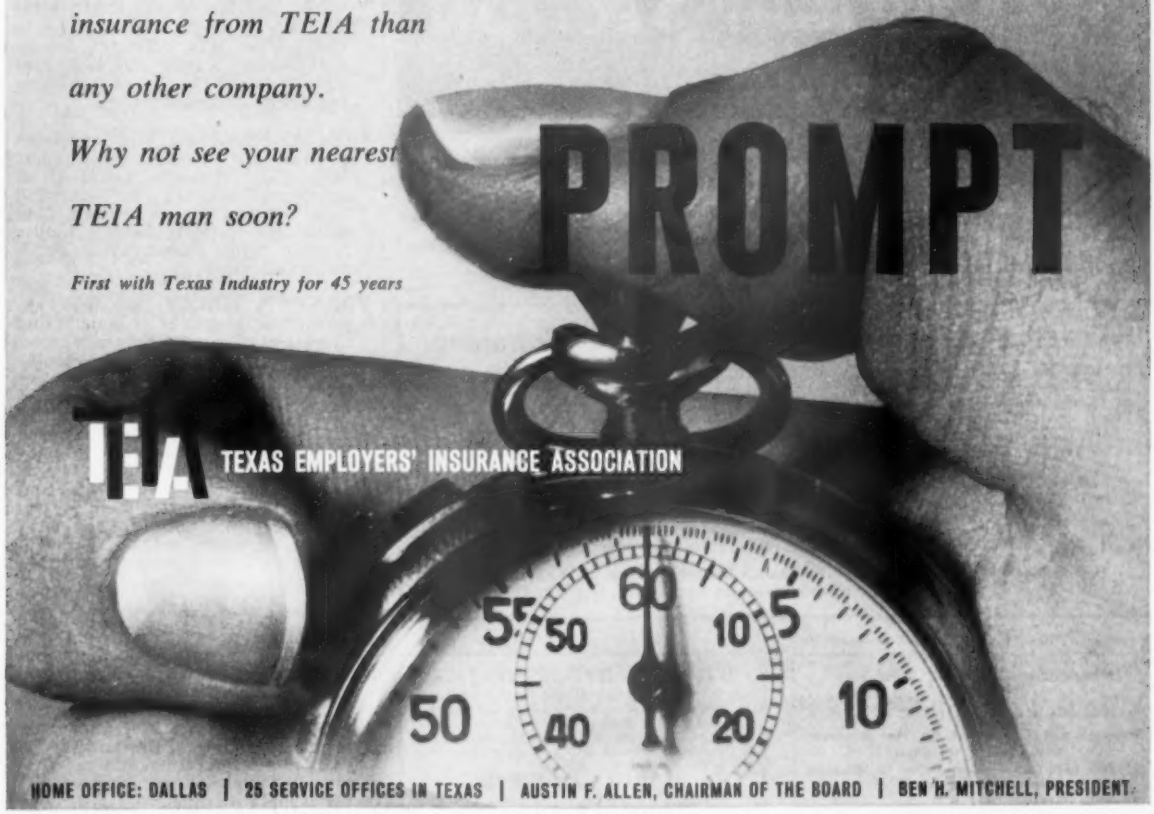
TEIA begins payment of weekly benefits.

If you've bought your workmen's compensation insurance from TEIA, all of this is done promptly, efficiently. We believe that excellent claim service is a strong link in the chain of loyalty that links employer to employee. Most employers do, too; that's one of the reasons why employers in Texas buy more workmen's compensation insurance from TEIA than any other company.

Why not see your nearest TEIA man soon?

First with Texas Industry for 45 years

PROMPT



TEIA TEXAS EMPLOYERS' INSURANCE ASSOCIATION

HOME OFFICE: DALLAS | 25 SERVICE OFFICES IN TEXAS | AUSTIN F. ALLEN, CHAIRMAN OF THE BOARD | BEN H. MITCHELL, PRESIDENT

DEPT/Service & Equipment Companies

V. D. Goins

A. B. Roop

A. B. ROOP has been named vice-president and general manager, and **VERNON D. GOINS** vice-president in charge of operations, for Tuboscope Co., Houston. Roop, who was formerly a regional manager, will take over companywide management and will report directly to the president. Goins, with the company since 1944, will be in charge of the domestic operating division. **Albin J. Murski** has been named southwest zone manager, responsible for the Corpus Christi and Houston division operations. He has been with Tuboscope for the past ten years.

L. GLENN RADER is the new vice-president and special sales representative in the New Orleans area for Maloney-Crawford Tank & Mfg. Co. Rader has been vice-president and sales manager, at the company's Tulsa offices, since 1956. Before that, he was vice-president and division manager for 11 years. He will work with Maloney-Crawford's expanded organization in the Gulf Coast area.

JOHN G. STAUDT, executive vice-president of Dow Chemical Co.'s Dowell division, will be president of Dow's new industrial service division. The new division, which will begin operations on Dec. 1, in Cleveland, will take over the solvent cleaning functions formerly performed by Dowell, and will provide services and products in the municipal and industrial waste- and water-treatment areas. **John S. Spriggs,** staff assistant in the chemicals department, will be vice-president and general manager of the new division.

ROBERT G. McCUISTION has been promoted from seismic party chief to supervisor for Empire Geophysical, Inc., with headquarters at the Midland regional office. He has been with Empire since 1955. Before that, he was associated with Seismic Explorations, Inc.

PARKERSBURG RIG & REEL CO. has transferred its operating executives to new offices in Houston. Executives moving to Houston are: **Craig M. Rowley,** executive vice-president and general manager, and **J. W. Robbins,** vice-president and general sales manager, from Parkersburg, W. Va., and **Fred King,** manager of manufacturing of oil country products, from Coffeyville, Kan. Other departments of the company are under study for possible relocation. Up to this time, only manufacture of Parkersburg oil and gas processing equipment was done in Houston, and division sales offices were located there.

JOHN C. MADDEN has been appointed sales manager, oil country tubular products, for National Supply Co., Pittsburgh. Madden joined the company in 1952 as a sales representative in the New York district office of the tubular division. He was named assistant district manager there in 1955, and was transferred to the export division as tubular manager in 1956. Madden will be responsible for all oil country tubular sales, including seamless and welded products.

J. C. Madden

H. C. Kaylor

HOWARD C. KAYLOR is the new product manager of Hydrotarder and Hydromatic Brake sales for Parkersburg Rig & Reel Co., with offices in Coffeyville, Kan. Before joining Parkersburg, Kaylor was associated with Standard Oil Co. of California and Creole Petroleum Corp.

DON AHRENS has been appointed general sales manager of Childers Mfg. Co., Houston producer of aluminum jacketing for insulated lines, elbows, towers, vessels, and tanks. He formerly held a similar position with Paasche Air Brush Co., in Chicago.

FRANK P. KELLY has been appointed manager of manufacturing operations for the Brown Instruments division of Minneapolis-Honeywell Regulator Co., producer of industrial process instrumentation, in Philadelphia. He succeeds **Frank M. Rea,** who has been assigned to Honeywell's industrial products group as consultant in industrial engineering, tooling, and subcontracting. Kelly joined Brown Instruments in 1943, and has served as purchasing agent, manager of manufacturing assembly operations, and general superintendent.

A. T. HUNT, P. H. JEZZARD, and **R. J. OLIPHANT** have been promoted to new positions in the manufacturing division of Bethlehem Steel Co.'s Supply Division, at its Tulsa plant. Hunt, who has been assistant chief engineer since 1947, moves up to chief engineer. He will be in charge of engineering and research for all equipment manufactured by the supply division. Jezzard, who

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: "OPPORTUNITIES" :EQUIPMENT :USED OR RESALE

DISPLAYED RATE

The advertising rate is $16.75 per inch for Equipment and Business Opportunity advertising appearing on other than a contract business.

EMPLOYMENT OPPORTUNITIES

The rate is $28.00 per inch. Subject to Agency Commission.

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$1.60 a line. Minimum 3 lines. Box numbers count one additional line.

POSITION WANTED. Undisplayed rate is one half of above rate, payable in advance.

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International Corporation needs an addition to its fast growing New York sales staff to handle promotional and field sales activities for their Lubricant additive product. Their sales territory covers the entire United States, and the position will include some travel.

Individuals applying should have strong experience in the lubricant or lubricant additive field with industrial lubricant advertising and sales promotion and/or considerable service station selling background.

A college degree is required and a major in Chemistry or a similar technical field is desirable but not mandatory.

Salary is commensurate with background or experience and background resumes should include salary requirements.

Please reply to P.O. Box 1307, Church Street Station, N. Y. 8, N. Y.
All replies held in strictest confidence.

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The C. W. NOFSINGER Co.

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307 East 63rd St. • Kansas City 13, Missouri
Phone EMerson 3-1460

BUSINESS OPPORTUNITIES

Use this Classified Advertising Section for bringing business needs or opportunities to the attention of men associated in administrative, executive, management, sales and responsible technical engineering and operating capacities within the oil industry.

PETROLEUM WEEK

has been with the division since 1946, is the new machinery application engineer. He served as engineering sales representative until 1955, when he was promoted to machinery service engineer in charge of the service department. In his new position, Jezzard will assist in recommending the proper application of Bethlehem machinery to customers' specifications. Oliphant is the new supervisor of the production control department. He has been with the division since 1936, and was promoted to chief of cost accounting in 1943. He has been works accountant since 1944.

PARK L. MYERS has been promoted to assistant vice-president of sales for Hughes Tool Co., Houston. He succeeds **W. H. Siems,** who is now vice-president of sales. Myers was most recently domestic sales manager, responsible for sales in the United States and Canada. Before that, he was division sales manager at Wichita Falls.

P. L. Myers

W. H. Rodewald

WILLIAM H. RODEWALD is the new vice-president and general manager of Nalco de Venezuela, C.A., in Caracas, and **James E. Starry** succeeds him as manager of the Texas division of the parent firm, Nalco Chemical Co., with offices in Houston. Starry, with the company since 1948, was most recently product manager of the coagulation chemical department, in Chicago. **John T. Burke,** formerly area manager in the Pittsburgh district, succeeds Starry in Chicago. At the same time, **Kenneth L. Russ** was named sales manager for the Venezuela subsidiary. He was formerly associated with another Nalco subsidiary, Visco Products Co., in Houston.

DOUG TOWERS, formerly vice-president in charge of engineering for Brown Fintube Co., Elyria, Ohio, has joined Maloney Industrial Equipment Co., Cleveland. He will service the refining, chemical, petrochemical, asphalt, power, and related industries using Brown Fintube heat-transfer equipment. The Maloney company has been named Buffalo and Cincinnati area representative for Brown Fintube.

RUE S. HESTAND is the new chief engineer of Cabot Shops, Inc., Pampa, Tex. He joined Cabot last year as assistant chief engineer in charge of pumping-unit engineering.

WILLIAM R. WHITLEY has been elected assistant vice-president of the Republic National Bank of Dallas. He has been affiliated with the Bank of Commerce, in Ft. Worth, for the past year.

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350 Park Square Bldg.
Hubbard 7-7160

Chicago 11 — Edward A. Callahan Jr.
H. Sherman Davis
520 N. Michigan Avenue
Mohawk 4-5800

Cleveland 15 — J. E. MacArthur
1164 Illuminating Bldg.
55 Public Square
Superior 1-7000

Denver 2 — J. W. Patten
Mile High Center, 1740 Broadway
Alpine 5-2981

Houston 25 — D. O. Hanson
724 Prudential Bldg.
Jackson 6-1281

Los Angeles 17 — Peter S. Carberry
1125 W. Sixth St.
Huntley 2-5450

New York 36 — Donald R. Thompson
500 Fifth Ave.
Oxford 5-5959

Philadelphia 3 — W. A. Potter
6 Penn Center Plaza
Locust 8-4330

Pittsburgh 22 — J. E. MacArthur
Room 1111, Oliver Bldg.
Express 1-1314

San Francisco 4 — William C. Woolston
68 Post Street
Douglas 2-4600

Tulsa 3 — J. A. Hartley
909 Enterprise Bldg.
522 South Boston
Gibson 7-5594

England, London E. C. 4 — E. E. Schirmer
McGraw-Hill Co., Ltd.
95 Farrington St.

Oil's Need for a Voice Is Urgent

THE OIL INDUSTRY IS LONG OVERDUE in establishing itself as an entity on the Washington scene. True, many companies and associations have representatives there now. But their efforts, individually and collectively, have too many limitations.

What petroleum needs desperately is *industry* representation.

It must have some individual in the capital who can speak for all of oil's manifold interests—a voice of stature and authority that will command respect and recognition. The companies and the associations have been doing and are doing creditable jobs. But it's not enough, by far.

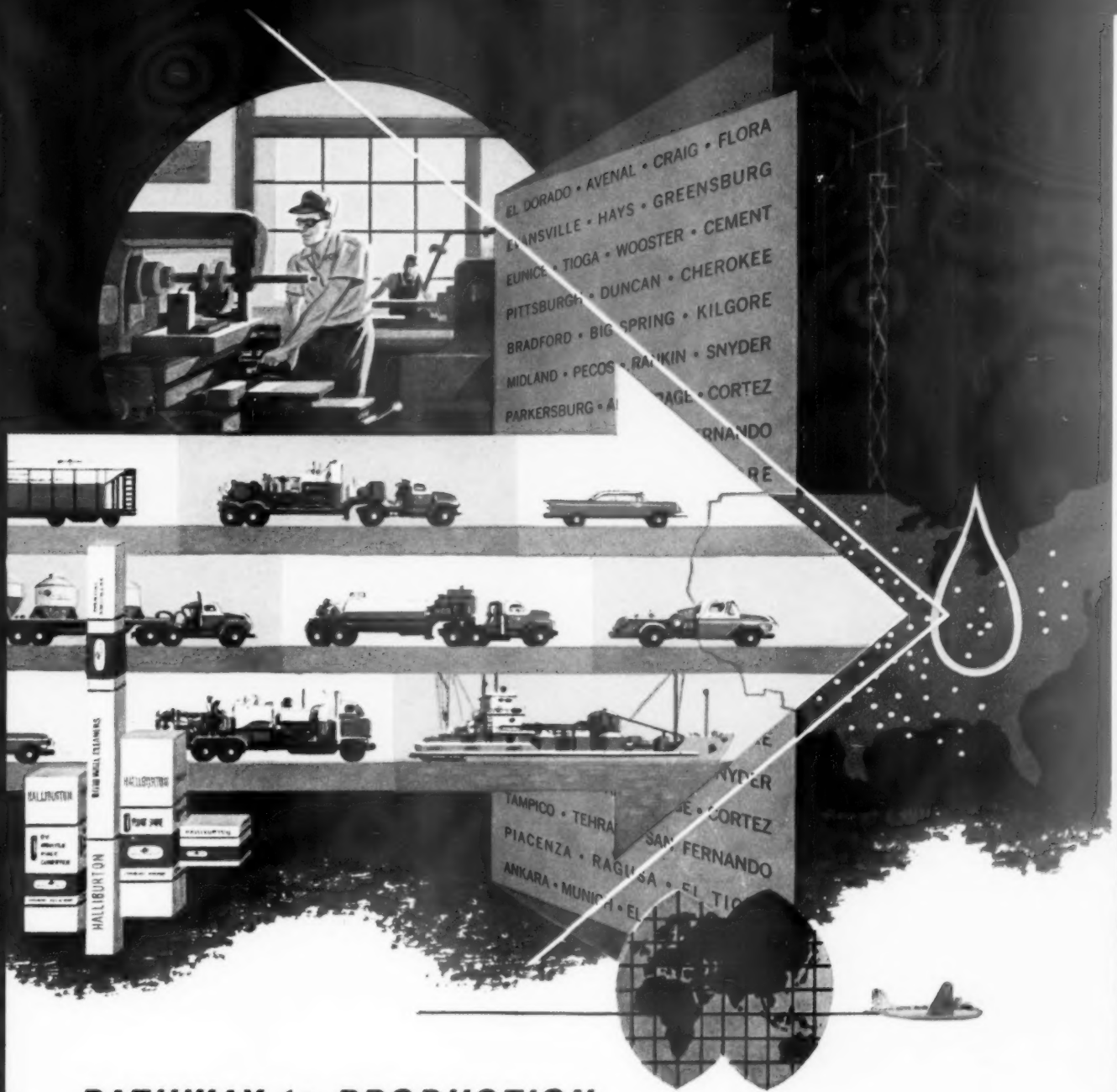
Russell B. Brown's impending departure from the Washington scene underscores the gravity of oil's plight in the arena of practical politics. His was one of the very few voices that could be heard. Unfortunately, it had limitations too, for Mr. IPAA's primary concern was the independent producer, and his interests naturally were weighted in that direction.

THERE'S NO DOUBT THAT OIL MEN and oil companies are restive about the Washington dilemma. That's evidenced by the fact that over the past year, some have established offices there for the first time, while others have revamped and expanded their present set-ups. Their moods and moves reflect the need for concrete action.

The coal industry, despite its internal problems, has solidified its forces in Washington. It is picking up ground rapidly. It is pushing relentlessly for a national fuels policy, the chief result of which would be end-use controls on energy. It is taking advantage of every opportunity, every forum, to press its attack. It is talking loud and long and, significantly, *as an industry*.

NEXT WEEK IS AN IDEAL TIME to bring oil's quandary to a head. The gentlemen who can make the decision, the "top brass" of the industry, will be in Chicago in force for the American Petroleum Institute's annual meeting. The challenge that faces them is inescapable.

It is immaterial whether they designate API as the spokesman, or set up some other mechanism. The only thing that truly matters is: Can they get the project off the ground before it is too late, or will oil continue to be like the "old woman who lived in a shoe, who had so many children she didn't know what to do?"


EL DORADO • AVENAL • CRAIG • FLORA
EVANSVILLE • HAYS • GREENSBURG
EUNICE • TIOGA • WOOSTER • CEMENT
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HALLIBURTON

PATHWAY to PRODUCTION

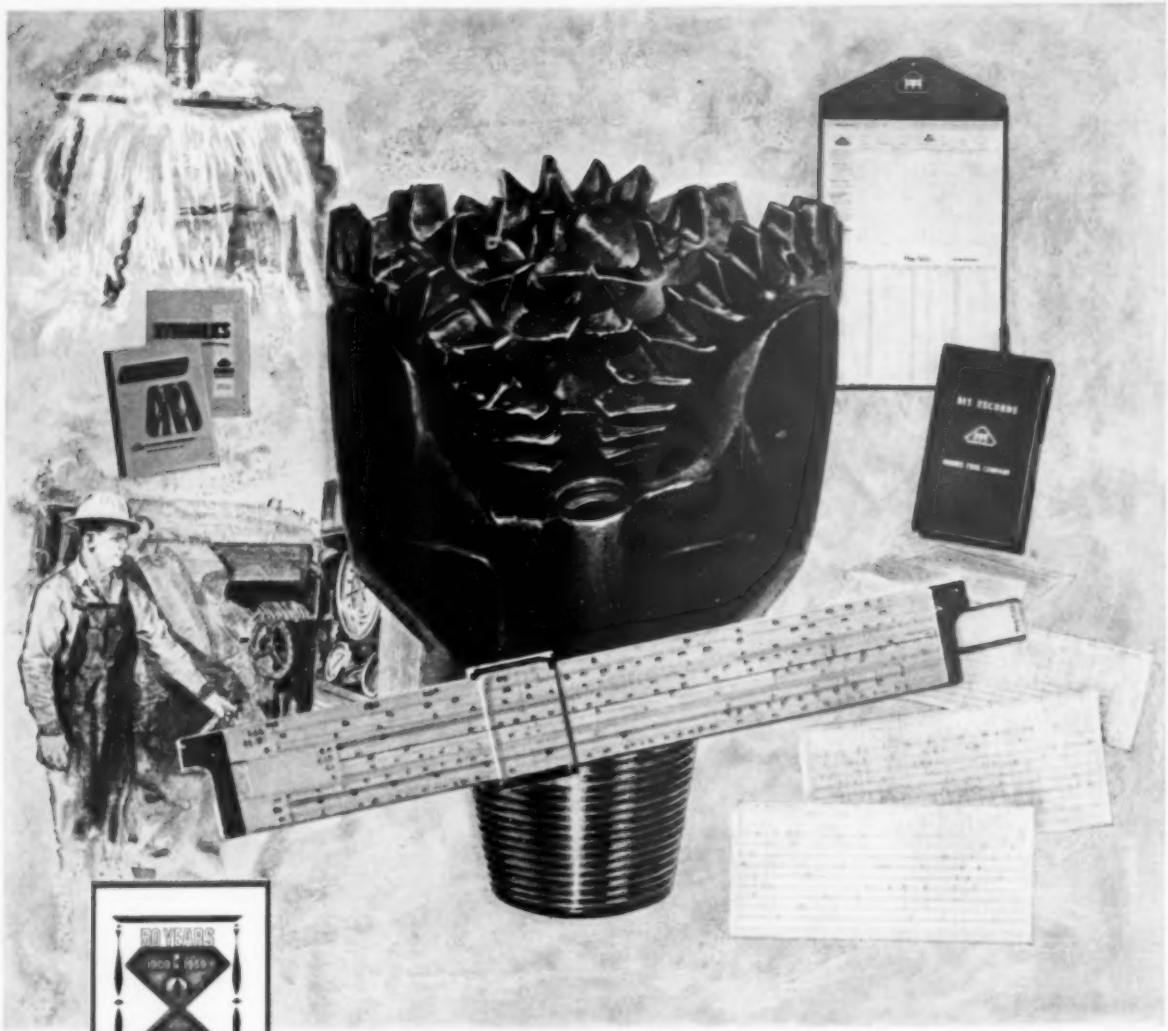
Your call specifying Halliburton products or services, sets into motion a unique flow of men, materials, and equipment; channelled directly to your well-site.

Distribution is accomplished through an integrated plan that makes available your requirements from whatever geographic area they happen to be, and . . . in any type of weather.

Manufacturing supports this flow of distribution by providing a stockpile of continuously active items.

Experienced operators can continue to be confident that Halliburton makes possible the industry's best "pathway to production."

HALLIBURTON OIL WELL CEMENTING COMPANY
DUNCAN, OKLAHOMA



What you get with
HUGHES ENGINEERED BIT PROGRAM

You get the benefit of the most accurate drilling information available for any given area . . . assistance in setting up the hydraulics for your well that will enable you to get the most efficient and economical performance out of your present equipment . . . and recommendations as to the best types of bits, weights and rotary speeds to use, based on field performance records.

Of special importance to you is the fact that back of this information and back of these recommendations is the world's greatest rock bit experience (50 years of it); a half century of drilling research; electronic analysis of approximately a half million bit runs a year, used in evaluating the performance of various bit designs and drilling techniques; and, finally, specialized manufacturing facilities capable of meeting the diversified rock bit needs of the drilling industry.

An experienced Hughes rock bit specialist or field engineer will be glad to assist you in setting up an *Engineered Bit Program* for your next well.

HUGHES TOOL COMPANY
50TH ANNIVERSARY YEAR 1909 – 1959